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INDEX TO NUMBERS 1–10

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(Names of authors in SMALL CAPITALS; of plants new to science in **boldface** type; of synonyms in *italic* type. Names in lists of "Officers and Members" have not been indexed.)

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No. 1 1908

BARTONIA

A BOTANICAL ANNUAL

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. I. PHILADELPHIA, PA. 1908

Introductory

At the close of its seventeenth year the Philadelphia Botanical Club has decided to begin the issue of a series of annual publications containing an abstract of its proceedings, and short articles dealing with the plants of the region about Philadelphia covered by its Herbarium.

As a title we have chosen BARTONIA in honor of Prof. Wm. P. C. Barton, Professor of Botany in the University of Pennsylvania, 1815, and author of the first local flora relating to this vicinity, the COMPENDIUM FLORÆ PHILADELPHICÆ, published in 1818.

Our frontispiece represents our first President, and the leading spirit in the foundation of the Club, the late Dr. J. Bernard Brinton, to whose enthusiasm and untiring zeal much of the success of the Club is due.

The plate is from a sketch by our late member, Mr. Albrecht Jahn.

STEWARDSON BROWN, *Editor*,
JOSEPH CRAWFORD,
WITMER STONE,
Publication Committee.

A Brief History of the Philadelphia Botanical Club

BY STEWARDSON BROWN

On the afternoon of December 1, 1891, eight men, Dr. J. Bernard Brinton, Thomas Meehan, Isaac C. Martindale, Uselma C. Smith, Witmer Stone, Joseph Crawford, George M. Beringer and Stewardson Brown, met in the Council Room of the Academy of Natural Sciences. Most of them had enjoyed the informal evenings in Dr. Brinton's "Den," and from time to time the weekly tramps under his leadership, and the time seemed ripe to organize into a local botanical club, the better to make use of the information being gathered, and with the co-operation of others who might be interested, to increase the knowledge of the local flora.

Dr. Brinton was chosen Chairman of the meeting and Mr. Brown, Secretary. It was resolved to form an organization to be known as the Philadelphia Botanical Club, and a committee was appointed to draw up a proper constitution and by-laws, and report at a meeting to be held at the same place a week later. The second meeting found six additional prospective members present, Dr. A. W. Miller, Benjamin Heritage, Charles D. Lippincott, Albrecht Jahn, Frank Miles Day, and Richard H. Day. The constitution and by-laws prepared were adopted, and permanent officers elected to serve for one year or until their successors be chosen. Dr. J. Bernard Brinton was chosen President, Isaac C. Martindale Vice-President and Treasurer, and Stewardson Brown, Secretary.

The objects of the Club as outlined were to further the interests of botany and make a check-list and herbarium of the plants to be found within a radius of fifty miles of Philadelphia. Messrs. Crawford and Beringer were appointed a committee to act with the chairman to secure a proper herbarium case for the use of the Club.

December 22d another meeting was held, when five addi-

tional members, Dr. John W. Harshberger, J. Bernard Morris, Edward Pennock, Morris E. Leeds, and Arthur N. Leeds, were added to the roll. The committee on herbarium reported in favor of accepting a collection representing most of the known local species, and a case offered to the Club by Isaac C. Martindale. These were duly received a month later, and Messrs. Brown and Beringer appointed a committee to care for same. A Field Committee was appointed consisting of Joseph Crawford, Chairman, Dr. Adolph W. Miller, and Uselma C. Smith.

February 14, 1892, the Club held its first field trip at Bartram's Garden, but little was noted other than the condition of some of the trees. What may be considered as the first real field trip, however, was held at York Furnace, Pa., from May 28th to 30th, inclusive, when a number of members availed themselves of an opportunity of studying the flora of this most interesting region. Mr. Brown, who had visited the locality some years previous, was chosen a guide. A second trip was made to the same place the first week of the following September, the results of the two being chronicled in a memorial volume printed for the members of the two parties.

During the first year the meetings had been held semi-monthly, on the second Monday afternoon and fourth Thursday evening, but beginning with November, 1892, were reduced to once a month, on the fourth Thursday evening, and have been held ever since from September to May, inclusive.

In January, 1893, the Club met with its first loss in the death of its Vice-President and Treasurer, Isaac C. Martindale; Messrs. Uselma C. Smith and Arthur N. Leeds being elected to the respective offices thus made vacant.

On May 30, 1893, was held the first joint field meeting with the Torrey Botanical Club at the Nockamixon Cliffs, at Narrowsville, Pa., Dr. Thomas C. Porter acting as guide, and on July 1–4 of the same year a second field meeting was held in the Pocono region at Tobyhanna, Pa.; both were interesting occasions to the members of the local club who participated, and were the commencement of a close relationship between the members of the two organizations which has continued ever since.

In December, 1894, the Club met with a severe blow in the sudden death of its President and founder, Dr. J. Bernard Brinton. He had been the leading spirit in all its undertakings, and the intimate way in which all had learned to know him made his loss the more deeply felt. A letter received from Dr. Henry Kraemer, on the occasion of the fifteenth anniversary, says: "I have always had a high regard for the work of the founder, Dr. J. Bernard Brinton. He can only be compared to an all-wise and beneficent giant who knew something of nearly everything, and was continually helping the fellow who wanted some light on natural science." This feeling so admirably expressed was surely reflected in all, and it was determined that there could be no more fitting memorial than to try to carry on the work as far as possible in the way he would have wished it done; how well the Club has succeeded in this is left for others to judge. Uselma C. Smith was elected the second president, and a year later was succeeded in that office by George M. Beringer, who had been an active spirit in the Club's affairs since its inception. In December, 1898, Joseph Crawford was elected to the presidency, and has been re-elected each succeeding year.

During the week of July 4, 1904, the first Botanical Symposium was held in the Susquehanna valley, at McCall's Ferry, Pa., The success of this and of the meetings which have followed is due in a large measure to the efforts of the Club's President.

In December, 1905, one of the objects for which the Club had been working was realized in the publication of the "Handbook of the Flora of Philadelphia and Vicinity," compiled by Dr. Ida A. Keller and Stewardson Brown from records furnished by the Club members and others, and has proven a stimulus to a more thorough study of the flora of the region; the rapid increase in the herbarium since that time, with the number of species and records of distribution added to the published list, is sufficient evidence of this, and the Club may congratulate itself on what has been accomplished without decreasing its efforts to carry out its first object, "to further the interests of Botany."

Botanical Trips to Northampton County, Pa., in 1908

BY S. S. VAN PELT

Prior to the fall of 1907 but little was known to the Philadelphia Botanical Club respecting the flora of Northampton county, Pa. A few odd specimens of comparatively ancient vintage, were in the local herbarium of the Academy of Natural Sciences of Philadelphia from Wind Gap, Pen Argyl and other places. A good preliminary skirmish had been recently made along the Delaware river shore, opposite Belvidere, N. J., and a number of interesting plants had been collected in the immediate vicinity of Martin's creek; but nothing of any account had been done in the interior before September 2d of that year, when, upon the invitation of Mr. Charles C. Bachman, of Bangor, a day was spent in the neighborhood of that town by a few members of the Club, with Mr. Hess, of Bangor, as guide, Mr. Bachman being unfortunately unable to join the party at that time. What was done upon that occasion was described at length at a Club meeting of last season, and need not be detailed here, as the same localities were revisited in 1908 and collections made of the same material under more favorable conditions. It will be easier, and certainly more readable, to give the results of our investigations in historical sequence rather than in dry tabular form.

So, then, on May 29, 1908, Messrs. E. B. Bartram, Bayard Long and S. S. Van Pelt might have been seen on a late afternoon train approaching South Bethlehem, when, on the steep bank of the first deep railroad cut about a mile or so below the station, a large colony of a strange plant arrested their attention; the bright yellow blossoms particularly excited universal admiration and wonder. What could this plant be? No one had any idea, and not till June 30th was the mystery solved, when its vigorous broom-like growth, very noticeable from the train, at once suggested *Cytisus scoparius*, which, in-

deed, the plant finally proved to be when collected in fruit on August 3d.

From Bethlehem one may go to Bangor by either of two trolley routes, the one going direct to Nazareth without change being preferable. At Nazareth there is again choice of route; the line going by way of Wind Gap should be chosen here, on account of the superior scenery. Upon this occasion the trip up from Bethlehem was made after dark, so that it was not then observed how sadly cultivation had encroached on the botanical hunting-grounds nearly all the way to the foot of the Blue Mountains, there being left but few places of promising aspect.

Early on the morning of the 30th Mr. C. S. Williamson joined the party, together with Mr. Bachman, who has been collecting in this region for several years, and who presented us with some choice specimens of early flowering plants for which we had arrived too late. Reinforced also by the addition of Mr. Hess, we began operations, in a disagreeable drizzle, in a dark wood on high ground to the southwest of Bangor, called locally the "Greenwold." This wood is traversed by a swift little stream of purest water, and in various ways suggests the Pocono region; Hemlock and Rhodendrons were here abundant and the yellow birch frequent (*Betula allegheniensis?*). The first interesting find was a large patch of *Caltha* in a little open wet place; some of the party considered it to be *C. flabellifolia;* it may prove to be so. Just about this time rain drove us to the woods, where the leaves of *Blephariglottis psycodes* were now showing. Here *Circæa alpina* was collected, found here in 1907; *Carex trisperma* was discovered by Mr. Van Pelt, while Mr. Williamson was fortunate enough to turn up *Alsine borealis*, a species new to our Club collection.

Going further south in this wood, Mr. Bachman called attention to some plants of *Cypripedium parviflorum* now past flowering; a large colony of *Tiarella cordifolia* was then encountered, with fortunately a few flowers still persisting; this plant also being new to the local collection. Emerging into a very wet meadow on the east side of the wood we collected *Carex conoidea* and *C. granularis*, the latter being the common *Carex* through-

out the region. Mr. Bartram found a single bush of *Viburnum pubescens*, in flower; this seems to be a very rare plant indeed in the Club territory; *Viburnum lentago*, also rare, was collected here, too. Very noticeable here, and in fact in all the boggy places of this region was *Veronica scutellata*, normally a northern species.

Rain all the afternoon kept the party indoors, but it cleared off toward evening, and we took a long walk north toward the the mountains. We found our maps gave a very unsatisfactory botanical idea of the country, as it is now, at all events, as frequently the best bogs are not marked at all, while other apparent bogs, so marked on the map, have disappeared, either by reason of drainage or from some other cause; there exists also a second railroad, north of the one on the map, roughly parallel with it, that is liable to cause confusion.

The next morning, the 31st, we took the trolley car for Portland, without guides; this line, after passing East Bangor, runs south of and somewhat parallel to the railroad to Portland, and between the two lines, lie perhaps the best botanical grounds of this section. We left the car a little west of Johnsonville, three and one-half miles northeast of Bangor, and crossing the short slope to the railroad, found *Carex bromoides* very abundant on both sides of it, west of a large wood; *Moehringia lateriflora* was abundant here and in magnificent flower. North of the railroad, in the open, the ground was extremely wet after so much rain, the grass was very tall, and collecting was accordingly very disagreeable; here Mr. Williamson found some very small specimens of *Arisæma pusillum.* Following the railroad east through the large wood, we found a deep ditch on either side, and in one of these Mr. Van Pelt discovered a small colony of *Naumburgia thyrsiflora*, another new plant for our herbarium; more of this was seen in the wet woods north of the railroad, where *Rubus americanus* was found in abundance; a decidedly northern plant. Meanwhile Mr. Williamson had turned up a large colony of *Equisetum fluviatile;* more *Caltha* was seen along here, perhaps *C. flabellifolia.* *Dryopteris cristata* and the large variety were both collected in the woods, and presently Mr. Long, who first detected *Rhamnus alnifolia*, in

leaf, at the Newton Symposium, further distinguished himself by finding it here, in green fruit. A first-rate colony of *Coptis trifolia*, in fruit, was found near the end of the wood; this plant occurs quite frequently in the region. *Trollius*, though found in several places, is sufficiently rare here to deserve mention as also growing on the edge of this wood.

South of the railroad, a quarter of a mile east of the station at Johnsonville, is a small bog that proved quite a botanical mine. Mr. Bartram opened the attack by detecting *Carex flava*, the first one of its kind to find its way to our herbarium (except a stray ballast specimen), *Eriophorum gracile*, *Drosera rotundifolia*, *Carex tetanica*, *C. lanuginosa* and *C. bromoides* in much better shape than in the first locality were some of the good things seen here; *Alnus incana* was growing near by, on the other side of the railroad. It is a little curious that *Parnassia*, now showing leaves and growing so abundantly in all these boggy places from Johnsonville east, should be absent from the Bangor swamps.

Leaving this bog, a halt was now made for dinner at a small hotel in Johnsonville, where a demonstration was given us of practical botany and of the merits of strawberries preserved in the sun; the adhesive properties of the latter were such that it required no small effort to tear the party away; this being accomplished, however, we next moved eastward along the railroad, and at the first cross-road turned up towards the trolley line. *Sisyrinchium mucronatum*, mostly a northern species, was gathered somewhere along here, as was also *Angelica atropurpurea*, yet another addition to the Club herbarium. Just over the fence on the left was a fine open meadow, and the writer noticed some curious dark-colored objects growing there, resembling clover heads, which upon closer view proved to be a large colony of *Geum rivale* in flower, this was a most welcome addition to our collection; *Salix candida* and the beautiful *Eriophorum polystachyon* were found by Bartram, both novelties to the Club herbarium; among the sedges, *Carex interior* must be here noted.

Resuming our route eastward along the railroad, the next interesting thing seen was *Veronica Anagallis-aquatica;* not rare

here, I believe. After looking into the bog where we first saw *Parnassia* last year, and where we now collected more *Carex interior*, we went south to the trolley line, followed it eastward, gathering *Vitus vulpina* by the way, and made a very hasty examination of a damp meadow on the right, not far west of Mount Bethel, where *Trollius* was collected in 1907; here a single specimen of *Carex pallescens* was found by Mr. Van Pelt, and more *Carex flava* was collected. From this point a rather disagreeable route was followed across cultivated fields back toward the railroad, which widely diverges from the trolley line as it approaches Mount Bethel; the final slope north to the railroad is very boggy, and extremely interesting botanically. Lack of time necessitated a hasty transit, and we proceeded to a small wood at the head of a pond north of the Mount Bethel railroad station; here Mr. Long, in September, 1907, had discovered *Conioselinum chinense*, a species, according to Porter's Pennsylvania Flora, not before recorded outside of Allegheny and Huntingdon Counties, the plants were now in leaf only, small, and not at all abundant; other things of interest here were *Waldsteinia*, *Polygala paucifolia*, *Carex trisperma*, and a most peculiar willow with wooly leaves, on the border of the pond. Proceeding on the road to Portland, in a field on the left, *Carex tetanica* was again collected, and *Castilleja coccinea* noted in great abundance in good flower. At Portland the party took the train home, well satisfied with their experiences.

The second expedition was made on June 26. The writer arriving first had an afternoon by himself in the "Greenwold." Here were collected *Panicularia elongata*, a characteristic northern grass; *Conopholis*, decidedly scarce, and a number of common things, *Chamænerion* was making a fine display, *Blephariglottis psycodes* was in good flower, but all "paled their ineffectual fire" before the glory of the *Rhododendrons*. The following day the party, consisting of Messrs. Bachman, Hess, Bartram, and Van Pelt, started north up Martin's Creek. In a large wood on the left, about a mile above Bangor, more and better *Panicularia elongata* was collected, and *Gymnadeniopsis clavellata* noted in leaf. Further north, west of the wood, in a large boggy meadow, *Eriophorum paucinervium* was gathered. From about

this point the mountains looked extremely alluring, and Mr. Bartram proposed to try the ascent of a peculiar projection from the main ridge known as the Big Offset. It was decided that there would be better chances botanically on the northern slope, and accordingly, after some difficulty in finding our way around to that side, due to missing the road to a saw-mill well inside the shallow valley between the two ridges, we found ourselves about one-third of the way up, on a road running up the valley along the mountain, at a good elevation. Here the route, following the directions given by the natives, proceeded straight up the mountain, without the slightest indication of a trail, through a very suspicious-looking dense undergrowth, over small irregular rocks. Symptoms of "ophiophobia" developed rapidly in some of the party, but the courageous Mr. Bartram took the lead with such a sovereign contempt for the lurking enemy that snakes were soon forgotten, and we presently reached safely the more open final rocky slopes just below the summit. Here we were richly rewarded with the following good finds: *Acer pennsylvanicum*, in good fruit and quite frequent, *Betula papyrifera*, found by Mr. Bartram, *Sorbus Americana*, in green fruit and abundant. On the summit, *Sorbus* was very common, *Ilicioides mucronata* quite common, *Ribes rotundifolia* occurred sparingly, and *Vaccinium pennsylvanicum* ran riot. A very neat little cherry, *Prunus pennsylvanica*, was collected in fruit, and a peculiar *Viburnum* noted by Mr. Bartram, who also made the important discovery of *Azalea canescens;* the latter, together with the *Sorbus*, *Betula* and *Prunus*, are new to the Club herbarium. While we are on the summit, we must not fail to visit the rocky promontory at the extreme eastern end of the Offset, which affords an excellent view both of the mountain range itself and of the country southward, disfigured by the all too numerous slate quarries.

On the descent, *Cornus circinata* and *Diervilla* were collected, both abundant, and *Lilium Philadelphicum* observed lower down, becoming more abundant at the foot. Dinner was had at a small place at North Bangor, and in the afternoon the first notable plant found was *Batrachium flaccidum*, in a little streamlet, the outlet of a great bog (so marked on the map),

just east of North Bangor; this bog was in part investigated, but nothing whatever found of interest. From here we proceeded towards Johnsonville, partly along the railroad, partly along the road, *Asclepias incarnata* was noted as the common milkweed, and *A. exaltata* found quite frequently. From Johnsonville station we walked west, following the reverse route of the morning of May 31st. By the railroad, *Lilium canadense* and *Asclepias purpurascens* were collected, and in the large wood north of the railroad *Rubus americanus* collected in fruit; *Naumburgia* was getting into fruit and a piece thereof put in press, *Carex comosa* and *Scutellaria galericulata*, rare, were also noted.

Early on the 28th, in an extensive wood west of the chief Italian section of Bangor, called Roseto, *Calla palustris* was seen in abundance, with some plants still in good flower; here *Panicularia pallida* and *P. fluitans* were collected, as were various members of the Ilex family, including *Ilicioides.* Our party, now reduced to three, Van Pelt, Long and Bartram, turned once more toward Johnsonville; various plants before mentioned were now collected in fruit; *Veronica americana* was noted. Southeast of Johnsonville, east of the place where *Geum rivale* was found, is a rather large wood, where *Fraxinus nigra*, and an abundance of *Dryopteris cristata* were observed. Near the middle of this wood a large group of *Cypripedium parviflorum* was seen, and along a little stream running through it *Conioselinum* was quite frequent; *Allium tricoccum*, *Betula alleghenicnsis* (*?*), *Rubus americanus*, *Smilax hispida*, *Trillium cernuum* were all here. Between the wood and the trolley line is a very fine bog called Getz's swamp; here *Sarracenia purpurea* was seen, and, earlier, Mr. Bachman had found one or two plants of *Cypripedium reginæ!*, of which, after long careful search, we saw no trace.

Dinner was had once more at Johnsonville (more sun-preserved fruit being "noted") and we then visited a large ice pond, north, collecting here *Naias flexilis*, *Carex flava* and *Potamogeton pusillus* (*?*); *Solanum dulcamara* appeared to be very common around Johnsonville. Further northeast another large pond was examined, and in the woods at the west end were

found *Allium tricoccum*, *Caulophyllum* and an abundance of *Conioselinum*.

We then turned toward the boggy slope one-half mile west of Mount Bethel, before referred to as so hastily traversed, and found here *Carex flava* absolutely common. In a pine grove on this slope *Coptis* and *Pyrola secunda* were collected, *Trientalis* was noted, while the presence of *Conioselinum* failed to occasion further surprise. On the open slope were numerous little slightly raised places, islands, as it were, and on one of these Mr. Long discovered a fine colony of his peculiar specialty, *Rhamnus alnifolia*. The writer discovered in a similar situation *Oxycoccus macrocarpus*, a plant long sought in vain in the region ; *Alnus incana* was collected in good shape, *Drosera rotundifolia* and *Limodorum* were observed, *Rhynchospora capillacea* noted as common on the upper slope, and presently we came upon a few plants of *Pogonia ophioglossoides*. Mr. Bartram unfortunately left before this exploration was completed, having to catch the train at Portland. *Melanthium latifolium* was one of the last plants collected, and far up on the slope, on our way to Mount Bethel to take the car for Bangor, a fine large patch of Rhododendrons was admired, in beautiful bloom.

On the 29th, Mr. Bachman and Mr. Hess joined us in an attack on the Little Offset ; this time we took a wagon as far as the foot of the mountain, and on our way saw for the first time here *Sambucus pubens*, apparently scarce. We ascended the mountain from the north side, the valley between the two ridges being extremely shallow, a mere gully, in fact. An old trail helped us here materially ; on the way up we gathered in *Carex fœnea*, *Diervilla*, *Panicum macrocarpon*, *Cornus circinata* and *Corylus rostrata*. On the summit nothing not previously noted was seen ; we collected, however, *Acer pennsylvanicum*, *Azalea canescens*, *Vaccinium pennsylvanicum*, *Prunus pennsylvanica* and *Ilicioides ;* oddly enough, no *Sorbus* was visible.

After descending, we walked along the road following the line of the mountains toward the Big Offset ; far up the mountain certain rock ledges caught the eye of Mr. Long, and we decided to make a second ascent. This was the most difficult work that we had had yet, as the slope was quite steep, and in places

actual climbing was required; *Sambucus pubens* was again seen here. Reaching the ledges we were rewarded with two ferns, *Woodsia obtusa* and *W. ilvensis; Capnoides sempervirens* grew on another ledge in the greatest profusion.

The following day, June 30th, we were guided by Mr. Bachman in a new direction. Below Delabole, two miles southwest of Bangor, in a railroad cut, we were shown *Phegopteris Phegopteris* in considerable quantity; from the general appearance of the place, we at once suspected that *P. Dryopteris* should be found there also, and our suspicions were shortly confirmed; by a stream near by, *Betula Allegheniensis* (*?*) was collected in fine fruit. On our way back to Bangor we digressed to the right to a large wood, where *Isotria* was very abundant, *Hypopitys* sp. being also collected here. but nothing else of particular interest.

On July 31st, the writer went alone to this region; the Greenwold was first examined, but little new seen of interest; *Actæa alba* and some other common things were collected, and the ripe fruit of *Viburnum pubescens* gathered from the same bush found in May. The following day, in company with Mr. Bachman, the woods north of Bangor, west of Martin's creek, were visited, and a vain search made for *Botrychium simplex*, a single specimen of which had been collected earlier by Mr. Bachman; *Waldsteinia* was here seen in leaf, and *Carex scabrata* and *Corallorhiza multiflora* were collected. Continuing north to the railroad, this was followed west, with some digressions, to Bangor Junction; here, north of the track, an abundance of *Blephariglottis psycodes* was shown to me by Mr. Bachman, in fine bloom, while curiously enough this plant in the Greenwold was quite past flower. A sort of half circle, west and south, was made from here to the woods west of Roseto, where were collected *Decodon, Ilicioides* in fruit, *Aronia nigra* and *Coptis*, from a newly discovered and very fine colony; leaves of *Isotria* were observed here also, and *Vaccinium corymbosum* and *V. atrococcum* found hopelessly mixed.

The following day, August 2d, Mount Bethel was visited, and a little west of the famous springy slope, in a grassy meadow not before explored by me, Mr. Bachman pointed out his lately found *Ophioglossum vulgatum;* in the same meadow *Lacinaria*

spicata was abundant, as was also *Oxycoccus macrocarpus*, and altogether this place seemed well worthy of a visit some future spring. The only new plants collected on this occasion from the springy slope near the *Pinus Strobus* grove were *Scirpus atrovirens*, *Myrica carolinensis* in fruit, *Aronia nigra* and *Epilobium strictum*, the latter plant, though seen in several localities about the region, never being abundant; going west along the railroad to Johnsonville one or two plants of *Blephariglottis psycodes* were noticed. After dinner at the little hotel (the supply of sun-preserved fruit being now apparently exhausted) we revisited the bogs and wood east of the station, in the first bog the writer turned up *Eleocharis intermedia*, new to our herbarium, Mr. Bachman collected *Sanguisorba canadensis*. In the woods north of Getz swamp, *Trillium cernuum* berries were very conspicuous and abundant, *Blephariglottis psycodes* was collected in beautiful condition. In Getz swamp, *Epilobium strictum* was represented by two or three plants, as remarked at Mount Bethel; remarkable is it that no *Asclepias pulchra* was found anywhere, its place being taken by *A. incarnata*.

No more excursions were undertaken to the region until fall, when, on September 4th, the writer arrived in the afternoon and took a solitary trip through the Greenwold; *Corallorhiza multiflora* in fruit and various common plants were collected. In the wet meadow east, the great abundance of *Polygala ambigua* was noted, and, more important, the very marked distinction between *Ilex verticillata*, collected in this meadow, and *I. bronxensis*, collected on the other side of the wood, was convincingly brought out by their aspect in fruit.

That evening Mr. Bartram arrived on the scene, and on the 5th, together with Mr. Bachman, a final assault was made on the Big Offset. This time we ascended by the eastern slope, some open fields extending well up on that side greatly facilitating the approach; *Helianthus strumosus* was found near the foot of the mountain, and mention may be here made of the abundance of *Vitis labrusca* in the region, these grapes were now ripening, and were by no means neglected.

The ascent was decidedly steep, and little of interest was noted, *Melanthium latifolium*, *Solidago puberula*, *Dœllingeria in-*

firma, *Aster lævis*, were seen en-route; the main object of the ascent was, of course, to collect the fruit of *Sorbus*, the great scarlet clusters of which were now making a gorgeous display on the summit. Trees of the striped maple five or six inches in diameter were noted. We walked along the southern edge a little way, and finding nothing of any account, then crossed to the northern side; here walking was much easier, exposed flat-rock surfaces affording a natural pathway, *Quercus Prinus*, *Vaccinium vaccillans*, *Cypripedium acaule*, *Aronia nigra*, and *A. arbutifolia*, appropriate plants for such a place, were all noted, and *Nabalus trifoliolatus* was collected.

The descent was made rapidly, and the bed of an ancient stream followed through the shallow valley eastward in the hope of obtaining water. The stream bed consists of large, loose stones, and possibly there actually is a small rill somewhere below, but not a drop was seen till the saw-mill was about reached. In this vicinity were growing *Panicularia elongata*, *Aster acuminatus*, *Actæa alba*, and *Gymnadeniopsis clavellata*. Returning toward Bangor, we traversed the wood west of Martin's Creek, and just outside the eastern border found for the first time in the region *Solidago patula*.

On the 6th we went direct to the little bog east of Johnsonville station, where *Eleocharis intermedia* was now found producing apparently a second crop of fruit on much shorter culms; *Solidago patula* was collected, while Mr. Bartram called attention to another Goldenrod, *S. uliginosa*, found by him in the vicinity in 1907, this species is new to the local herbarium; these two are the chief bog Goldenrods about Johnsonville and Mount Bethel, both being abundant. In the same bog *Muhlenbergia racemosa* was found, seen somewhere in the region by Mr. Bartram in 1907, but not determined till this year; *Lobelia Kalmii* was here collected, and *Panicum flexile* found in much better shape than when first seen last year. The *Geum rivale* meadow was next visited, and a late rosette of that plant collected; at the entrance to the wood east, *Falcata Pitcheri* was found. In Getz swamp, *Muhlenbergia racemosa* was again encountered, likewise another *Muhlenbergia*, resembling *M. mexicana*, it agrees fairly with *M. foliosa;* we also saw in this

swamp *Melanthium latifolium*, and immense plants of *Helianthus*, well named *giganteus*. In the open, beyond the wood east of the swamp, *Trollius* was now flowering a second time, quite the regular custom, it would seem, of this plant; near by *Nabalus albus*, with its bright cinnamon-colored pappus, was gathered. In another bog south of the railroad, further east, *Epilobium lineare* was observed, and the party then pushed on direct to Mount Bethel for dinner. This important matter disposed of, we turned to our now favorite hunting-ground, the springy slope west of the station, south of the railroad. At the first little streamlet, Mr. Bartram called attention to *Cyperus rivularis*, *Solidago patula* being first carefully collected, we entered the wood from which the streamlet emerged, and Mr. Bartram soon unearthed *Filix bulbifera; Nabalus albus*, *Waldsteinia*, and *Conioselinum* were all noted, and the writer caused considerable hilarity by yet once more collecting *Solidago patula*, the plant was simply irresistible. Continuing across the slope, we found a colony of *Pentstemon digitalis* in fruit, and discovered a second locality in this region for *Scleria verticillata*, a plant found northeast of Mount Bethel by Mr. Long in 1907; collections were made both of *Conioselinum* in the pine grove, and of the following on the wet open slope west of it: *Rhynchospora capillacea*, *Lobelia Kalmii*, and *Solidago uliginosa*, all abundant plants. On the railroad we found *Cyperus flavescens*, and north of it a single bush of *Viburnum Lentago*, and then turned toward Portland. In the *Castilleja* meadow that plant was still in flower, growing with *Lobelia Kalmii*, *Scleria verticillata*, and *Panicum flexile; Aster novæ-angliæ* was observed in the neighborhood, and Mr. Bartram made his final exit from the scene, taking the train home from Portland.

On the 7th, the writer, accompanied by Mr. Bachman, walked to Richmond, about three miles southeast of Bangor, collecting on the way *Quercus prinoides* in fruit, but seeing little of botanical interest; from here Mount Bethel was reached by road, passing through Stone Church, another zero being scored. From Mount Bethel an attempt was made to reach a little bog marked on our map one-half mile northwest of Portland, but no trace of it was found; another long walk west from this

point brought us to the large pond before mentioned, one mile northeast of Johnsonville, and here were collected *Allium tricocum* in fruit, and *Conioselinum;* this somewhat unfruitful day brought the September excursion to a close.

On October 2d I made a final solitary trip to Bangor, with the object of securing, among other things, more satisfactory specimens of *Solidago uliginosa*, and ripe fruit of *Conioselinum;* on the third a visit was paid to Delabole. By the railroad, below the station, were collected riper fruit of the Yellow Birch, *Gyrostachys sp.*, *Gentiana Saponaria*, and some very poor specimens of *G. crinita;* a single tree of *Malus coronaria* was pointed out by Mr. Bachman, the fruit of which had mostly fallen, and the remarkable viscidity of the surface of these little apples was noted.

In the afternoon I went alone to Getz swamp and secured the fruit of *Parnassia*, and much better flowers of *Gentiana crinita*, *Solidago*, both here and in the little bog near Johnsonville station, exhibited a most puzzling and discouraging variety of aspect, and but a single specimen was collected; probably it may nearly all be referred to *S. uliginosa.* From here I for the first time walked into Bangor along the railroad and saw near East Bangor abundance of *Willugbaeya scandens.*

On Sunday, October 4th, I went alone to Mount Bethel to bring this botanical investigation to a close; *Gentiana crinita* was seen in fine bloom, and fruiting specimens were obtained of various plants formerly collected in flower, *Conioselinum*, *Lobelia Kalmii*, *Parnassia;* it took considerable time to select satisfactory specimens of *Solidago uliginosa*, but some widely divergent varieties were finally secured in flower and still retaining root leaves. In the afternoon, from a little hill south of the *Ophioglossum* meadow, a most beautiful view of the ever impressive Delaware Water Gap was enjoyed. The whole peaceful scene, together with the satisfaction arising from the very successful results of this long series of expeditions, combined to awaken the most pleasing thoughts, and lent a peculiar charm to these last hours in Northampton County.

Some Sand Dune Plants from Longport, N. J.

BY JOSEPH CRAWFORD

The little narrow tongue of land forming the southern extremity of Absecon Beach, upon which the borough of Longport is located, offers so little inducement to the average botanist that no one but an enforced inhabitant of that isolated portion of New Jersey would endeavor to inspect those dunes for rare plants, and never expect to get anything but the usual maritime forms throughout the season.

There is a narrow ridge of tree life along the bayside, beginning below Ventnor and ending abruptly at what was formerly called Oberon, but which is now, I believe, incorporated with Longport. From here to the inlet, a mile or more, there are no elevations but dunes, and no vegetation but beach grass and bay bush shrubbery, so to speak, or nothing larger than the beach plum.

At about Tenth Avenue building operations cease, and the original dunes thereabout possess considerable interest.

During the early summer of 1907, in company with Mr. Brown, I turned up great quantities of *Rumex hastatulus*, which had not previously been recorded from the State. It was scattered over this lower section, but did not occur above Tenth Avenue at Longport, nor on any other portion of the island, so far as I could discover.

About the middle of June this year, after housing my family in a cottage, I strolled again into this section, when my eyes were attracted to a short spike of greenish-yellow flowers, and what was my surprise to find it was *Leptorchis Loeselii* in flower here on the open, grassy sands, but what was a still greater surprise was to find associated with it the sand-beach adder's tongue, *Ophioglossum arenarium*, growing without the shade even of big bushes. The colony was not as large as the one recently destroyed at Holly Beach, but was just as healthy.

Another curious associate in this sand dune swale was *Onoclea sensibilis*, three or four very small plants, ranging from one to three inches including the stipe. There are no mature specimens of the plant on any part of the island so far as I could discover, and the spores must have been carried either across the inlet from Ocean City or from the mainland about Somers' Point. The apparent fixity of Longport building operations caused me to feel very comfortable regarding the preservation of these rare plants in the future, but my comfort was short-lived, as in less than two weeks a bungalow that had been enjoying precarious existence along the bay shore was transported bodily across the dunes midway to the sea and in close proximity to my choice spot. With such incidents occurring so near to our discoveries, I began to look the island over for other locations, and was rewarded by finding one other spot, in the vicinity of "the Elephant," where a few *Ophioglossums* were growing.

The Coastal Strip of New Jersey and the Rediscovery of Lilæopsis

BY WITMER STONE

For some years past I have been impressed with the difference between the flora of the New Jersey pine barrens proper and the narrow strip of territory lying between them and the salt marshes or "meadows" of the fishermen.

The botanical richness of this coastal strip is remarkable. Not only do many characteristic pine-barren plants mingle with maritime species, but others that belong neither to one class nor to the other grow here in luxuriance. *Lobelia cardinalis*, *Eupatorium perfoliatum*, *Helenium autumnale*, *Sabbatia angularis*, *Lacinaria spicata*, *Sanguisorba canadensis*, *Vernonia noveboracensis* and many other familiar plants of eastern Pennsylvania and northern and western Jersey grow along the coastal strip from Sandy Hook to Cape May, but will be sought for in vain in the pine barrens. The problem of discovering how they got there is not one to be solved by a season's work, nor a hastily conceived theory, but is rather dependent upon a thorough knowledge of the components of this coastal flora and the distribution of each species. This is the side of botany which has always appealed most strongly to me, and the accumulation of facts for the elucidation of such problems is more gratifying than the discovery of new species.

Therefore I try every season to pass some time on this interesting coastal strip, and I rarely fail to find ample reward.

Our acquaintance with the flora of the coastal strip began at Cold Spring, just north of Cape May, where Messrs. Williamson and Van Pelt made extensive collections in 1906. Among their more striking discoveries were *Scleria verticillata*, then unknown from the southern part of the State; *Leptorchis Loeselii*, *Carex fusca*, and *Menyanthes trifoliata*.

The curious transition in floras as one approaches the salt water from the pine barrens was beautifully shown about Cold Spring, especially by the *Sabbatias*. Back at the head of the swamp in a little tract of pine barren affinities, grew the white *S. lanceolata*, which gave way along the coastal strip to *S. angularis*, which in turn was replaced by *S. stellaris* in the salt meadows. So also in the pine-barren areas were *Blephariglottis blephariglottis* and *Lacinaria graminifolia pilosa*, replaced in the coastal strip by *B. lacera* and *L. spicata*.

In 1907 several members of the Club touched two points on the coastal strip that had not hitherto been investigated, namely, east of Cape May Court House and north of Palermo. At the former spot we were rewarded with great quantities of the Pink Orchid, *Blephariglottis peramoena*, growing close along the marsh border and mingling with *Asclepias lanceolata*, and strictly maritime plants. Above Palermo our greatest treat was a mass of *Sanguisorba* in more luxuriant bloom than I ever saw it elsewhere, and standing behind it rows of the tall purplish plumes of *Erianthus compactus*. At both places also we found *Scleria verticillata*, so that instead of a Cold Spring rarity, this obscure little sedge seems to be a regular member of the coastal strip flora.

Early in August of the present year I took a tramp from Beesley's Point to the causeway leading to Ocean City, and, as our 1907 trip began at this point, I had now roughly covered the country lying between Beesley's Point and Palermo, and was ready to continue investigations southward to connect with work of earlier years.

Beesley's Point has many associations, and the old house still standing near the boat landing could doubtless tell many a tale of the enthusiasm of early naturalists. Here both Wilson and Audubon made their first acquaintance with the water-fowl, at a time when white egrets, skimmers, gulls, terns, stilts and avocets thronged the swamps and beaches, and here, too, all the early botanists made their headquarters when a large part of the flora of the surrounding wilderness was unknown to botanical science. Thomas Nuttall especially was wont to scour this region for novelties, and his label "Egg Harbour" refers to the

vicinity of Beesley's Point, on Great Egg Harbor Bay, not the later settlement of Egg Harbor City as some have inferred.

In the herbarium of the Philadelphia Academy are two Nuttall specimens which bear this label, and it is not surprising that they were in my mind when I visited this historic spot, namely, *Gymnandeniopsis integra* and *Lilæopsis lineata*, but I saw nothing of either.

On August 30 came the opportunity to continue my investigations, and the early excursion train for the shore—the "botanists' special"—was whirling Mr. Van Pelt and myself rapidly towards Palermo.

We leave the train at this solitary little station to the astonishment of the excursionists, who in another moment are speeding away for the beach.

The early morning rush to the ferry, the mouthful of breakfast swallowed hastily at a "hash house," and the hilarity of the trainful of excursionists as we race madly eastward across the State are but memories as we find ourselves alone in the quiet of the pines. The barrens lie everywhere to the west of us and eastward are the green salt meadows, stretching miles away to the sea. There is always a fascinating uncertainty at the outset of one of these Jersey trips as to the insect density of the atmosphere—its "mosquitology," if we may be pardoned for following the ecologists in coining a new word.

Long experience has shown that days group themselves in three categories: good days, when nature's weapons suffice to kill the pests; "citronella" days, when artificial aid is necessary; and "mask days," when nothing avails but protection with gauze netting and gloves. August 30 was a "mask day," and only he who has tramped the meadows in the boiling sun closely clad in coat and mask, and no breeze blowing, can appreciate what we had before us and the enthusiasm that is necessary to keep one going under such circumstances. It is not easy traveling either, in this coast strip country; all paths lead from the interior to the shore, or at right angles to our line of march, and muddy ditches have a way of running in the same angle. Then the woodland where it straggles out in points on to the marsh lands is a vast tangle of green brier

which is almost impenetrable, so that it is always better to go around than through. Hence by numerous windings we are forced to cover a great deal of ground while making but little definite advance. We were interested to find among the trees that make up these strips of coast woodland a number of dogwoods, *Cornus florida*, another species unknown in the pine barrens, while *Juniperus virginiana*, always the most characteristic coast-strip tree, was abundant.

Down in the grass just where the *Spartina* and *Juncus Gerardi* of the marsh meet the upland species we found *Oldenlandia uniflora* and *Chætochloa versicolor*, and a little further on came upon the now familiar *Scleria verticillata* mingled inextricably with *Fuirena* and several grasses and rushes, and away out on the very edge of the salt grass were scattered plants of *Bartonia.*

The white *Eupatoriums* of several kinds were just at their height, and the golden carpet of *Bidens* and *Solidago* was just becoming conspicuous, speckled here and there with the purple blossoms of *Gerardia purpurea.* In other places were only evidences of past glory, an acre or more of *Kosteletzkya virginica* all in fruit, so that the seeds rattled from the dry pods as we pushed through, and a great array of tall button-capped stalks of *Eriocaulon decangulare.*

At one point well out on the salt meadows, farther than any of the inland plants had ventured, we were attracted by some waving wands of purplish hue, and we were soon examining a fine colony of *Lythrum lineare* not reported south of Ocean Co. in Britton's Catalogue, but familiar to us at Cold Spring, where it was discovered by Mr. Van Pelt some years ago. A few more steps and we were down in a slight depression where a fresh-water spring bubbles up in the salt meadows, and has belched up a quantity of white sand, which forms a hard bottom several yards in extent either way. This was covered with a thick mat of *Muhlenbergia mexicana*, already turning brown and well past flowering. A few bright green leaves protruding from below its edge caught Mr. Van Pelt's eye, and as he pulled away some of the matted grass the shade of Nuttall arose before me, and I instinctively exclaimed *Lilæopsis!* And so it was, trailing all over this white sandy bottom with its little fleshy leaves erect,

and here and there the little recurved umbels of fruit, though it was rather over-ripe for collecting.

Here it was within a short distance of Egg Harbor, as Nuttall used the term, and somewhere hereabouts he found it in 1817 or before, when it was known only from the types collected by Michaux in South Carolina, and perhaps from some other southern stations. Nuttall, taking it from the genus *Hydrocotyle* where Michaux placed it, called it *Crantzia*, and says "abundant near Egg-harbour, New Jersey, in a salt-marsh with *Limnetis juncea*, etc." Who shall say that we had not rediscovered his identical station? It is an attractive thought, and we shall cling to it until it is shown that *Lilaeopsis* occurs at other points in the same vicinity.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1908

December 26, 1907. Annual meeting. Eighteen members present. Election of officers for the ensuing year resulted in the choice of: President, Joseph Crawford; Vice-President, Dr. Ida A. Keller; Secretary, Stewardson Brown; Treasurer, Arthur N. Leeds; Curator, Samuel S. Van Pelt. The evening was devoted to an examination of a display of new and interesting species added to the herbarium during the year.

January 23, 1908. Eleven members present. Messrs. Van Pelt, Brown, and Long spoke on "Some Plants of the Delaware Peninsula."

February 27, 1908.—Twelve members and one visitor present. Messrs. Van Pelt, Williamson and Long spoke on "Plants of the Upper Delaware."

March 26, 1908. Twenty-one members and two visitors present. Mr. Van Pelt spoke on "Some Plants of the New Jersey Pine Barrens." Mr. Brown showed a specimen of *Utricularia virgatula* Barnhart, so named by Dr. Barnhart; the specimen was collected by the speaker at Cold Spring, Cape May Co., N. J., in August, 1891.

April 23, 1908. Eighteen members and six visitors present. Mr. Stone spoke on "Local Violets." Dr. Keller showed a specimen of *Tulipa sylvestris* L. collected at Lansdowne Glen, Fairmount Park, by Miss Alice Ryan, a High School student.

May 28, 1908. Thirteen members and two visitors present. Mr. Van Pelt spoke on "Plants of Cape May County, N. J." Mr. O. H. Brown recorded the occurrence near Cape May of *Hottonia inflata* Ell., *Leptorchis liliifolia* (L.) Kuntze, *Dennstædtia punctilobula* (Michx.) Moore, and the abundance of *Savastina odorata* (L.) Scribn. on the edge of the salt marsh; *Tipularia*

unifolia (Muhl.) B. S. P. is abundant in the woods, and *Malus angustifolia* (Ait.) Michx. is abundant between the upland and salt marsh.

September 24, 1908. Eleven members present. Mr. William Findlay was elected a member. Mr. Van Pelt gave a brief resumé of the summer's work. Mr. Long showed specimens of *Amaranthus pumilus* Raf. from Long Beach Island, N. J.

October 22, 1908. Seventeen members and one visitor present. C. C. Bachman, Bangor, Pa., and O. H. Brown, Cape May, N. J., were elected corresponding members. Messrs. Williamson and Van Pelt spoke on the "Delaware Symposium." Messrs. Stone and Brown were appointed by the Chair to consider with him the publication of the Club's proceedings. Mr. Bassett showed an interesting collection of cut Dahlias, speaking of their development in this country.

November 25, 1908. Thirteen members and one visitor present. Mr. Williamson spoke on "Some Plants Observed near Washington, D. C., at Virginia Beach, Va., and Weldon, N. C., in the spring of 1908." Mr. Bartram spoke of "Some Collections around Weldon, N. C., during October," and Mr. Lang spoke on "Plants of Virginia Beach, Va., and Vicinity during Midsummer."

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1909

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No. 2 1909

BARTONIA

A BOTANICAL ANNUAL

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 2. PHILADELPHIA, PA. 1909

Additional Notes on the Flora of Northampton County

BY S. S. VAN PELT.

In the spring of 1909, two excursions, each of several days' duration, were made by a few members of the Club to the same localities so frequently visited in 1908. Many early flowering plants were collected and a few novelties were secured. It was also observed that certain plants for which particular localities were given in the first number of "Bartonia" were really quite general in the bog region about Johnsonville and Mount Bethel; thus the following species, *Parnassia caroliniana*, *Geum rivale*, *Vagnera stellata*, *Trollius laxus*, *Castilleja coccinea* and *Eriophorum polystachyon*, form a frequent association, though one or more members of the group are here and there rare or wanting.

Of the more interesting novelties collected, Mount Bethel furnished the following: *Dentaria diphylla*, in the woods at the mill pond and elsewhere; *Juncoides pilosum*, in the same locality; *Carex pedunculata*, in wet woods west; *Viola rostrata*, in the same locality, and *Carex teretiuscula*, on the north border of the mill pond. Here it should be noted that the *Carex* mentioned in "Bartonia" No. 1, page 8, line 12, as "*Carex bromoides* in

much better shape," proved to be *Carex teretiuscula*, a more interesting find; the *C. bromoides* collected on that date west of Johnsonville was, however, the genuine article.

In the woods at the east base of the Big Offset, *Clintonia borealis*, not before represented in the Club herbarium, was found to be quite abundant. Here specimens were also collected of *Coptis trifolia*, *Populus tremuloides*, *Salix Bebbiana*, *Trientalis americana*, *Cypripedium pubescens*, and of *Acer pennsylvanicum*. Much material in flower was collected on the mountain itself, mostly species previously gathered in fruit, the *Azalea canescens* being especially noteworthy. A genuine novelty was a small *Cypripedium*, far up the north slope, closely approaching the form (?) *parviflorum*.

About half way between the Offset and North Bangor, in a wood south of the railroad, a great number of plants of *Trillium erectum* in fine flower were observed. *Cypripedium pubescens* was collected, and *Dirca palustris* was discovered in a third locality, Mr. Bachman having earlier in the season found it in two places, in the "Greenwald" and in the woods west of Martins Creek, well north of Bangor; in these latter woods Mr. Long found *Alsine borealis*, growing very sparingly by a little streamlet.

The fine bog one-half mile east of Johnsonville Station, known as Getz's swamp, furnished us with specimens of *Arethusa bulbosa*, here growing plentifully about the bases of the *Carex* tussocks, while the wood just north of that bog yielded yet another colony of *Dirca palustris*, and a profusion of *Cypripedium pubescens*.

Mr. C. C. Bachman, who has been of such eminent service to us in this region, has removed to Slatington, where he expects to continue his botanical explorations. His contributions to the Club herbarium now number nearly two hundred sheets. Among these is a specimen of *Petasites Petasites*, a decidedly rare plant, from Flicksville, south of Bangor.

Lehigh County and the Philadelphia Botanical Club

BY HAROLD W. PRETZ.

The range which the Philadelphia Botanical Club has selected for its field-work is comprised within the following boundaries: The Susquehanna river within the State of Pennsylvania is a natural limit on the west. On the northwest, with the exception of a portion of Dauphin county in Pennsylvania, if that county is entirely within the Club range, the Kittatinny or Blue mountains are a natural limit to the State line at the Delaware Water Gap. The Delaware river is then a natural boundary until the northern boundaries of the counties of Hunterdon, Somerset and Middlesex in New Jersey are reached. On the east lies the Atlantic ocean. On the south, with the exception of New Castle county in the State of Delaware, Delaware Bay, the Delaware river and the boundary line of Pennsylvania form the limit.

It will be noticed that while the limits of this area are largely political, they are in the main physical. The area selected can not be said to be a natural one; but having so many natural boundaries, it is an excellent field for any work the Club may desire to undertake.

Systematic botany is as interesting to-day as it was in years gone by when pioneers in the science labored. Out of the mass of material that was then gathered grew the science as we now know it. In the beginning, species were described and later when they became better understood, were classified and some attempt to mark their distribution was begun. In the present day, these changes are still at work and all is tending toward a perfected science.

It will be seen that whatever we possess of this science has been the result of the work of the past. In this attempt at a

better understanding of living plants, various factors have had their influence. This has been the common history of all the sciences: each has been more or less dependent upon the other in many ways. Thus geology has influenced botany and has been influenced by it. Plant distribution has steadily grown into importance as an aid to the better understanding of species. Species are often confined within recognized limits, and a study of these limits results in a better understanding of the species.

Alexander von Humboldt was the first to lay the foundations of plant geography by dividing the earth into botanical zones. The prime factor of plant distribution is temperature and the great botanical zones were laid out in isothermal lines constructed by connecting points having the same mean annual temperature. The zones thus constructed are of course broadly conceived and are in many ways inaccurate.

In this country, C. Hart Merriam,[1] of the U. S. Biological Survey, Department of Agriculture, has conducted investigations based on these principles and has mapped the country into life zones. A careful reading of the published results of his investigations cannot fail to result in a realization of the great importance of this factor in the distribution of plants. It will be seen that it is not only of the utmost importance in defining ranges but in a correct understanding of many other problems as well.

There are, of course, other factors influencing plant distribution and all must be given proper consideration by the botanist in the study of the science. The manner in which ranges are determined for the larger descriptive manuals of botany is well understood. In such a large work it is often impossible to do more than indicate geographical distribution based on specimens. Thus the range of *Andromeda Polifolia, L,*[2] as given in

[1] Laws of temperature control of the geographic distribution of terrestial animals and plants. "Nat'l Geogr. Mag., vol. 6, pp. 229 to 238, 3 col. maps, 1894;" The geographic distribution of animals and plants in North America, Yearbook Dept. Agr. for 1894, pp. 203 to 214; Life zones and crop zones of the United States, Bull. No. 10, Div. Biol. Surv., U. S. Dept. Agr.

[2] Gray's "Manual," seventh edition, defines the range of *A. Polifolia L*, as "Arctic regions, extending very locally s. to the Adirondack Mts., N. Y. (?),

"The Manual of the Flora of the Northern States and Canada," by N. L. Britton, is, "In bogs, Newf. to Alaska, N. J., Penn., Mich. and Br. Col. Also in Europe and Asia." It is quite safe to say that the occurrence of this species in N. J. and Penn. is limited to the vicinity of the glaciated area where it flourishes in a congenial habitat. It would hardly be convenient to state this in a manual of such wide scope nor is it expected that it should be so stated; here, however, is a factor in the distribution of this species which when known is at once apparent. All of these factors are being recognized more and more in recent literature on faunal and floral distribution. Mohr's "Plant Life of Alabama" and Piper's "Flora of Washington," both government publications, are good illustrations of floras which have been treated with reference to the influence of life zones, and it can be said that the results have fully justified the treatment. In view of the importance of this factor of plant distribution, it will be recognized that if an adequate treatment of our flora is desired, all work in the future must be conducted along these lines.

The area of the range of the Club is entirely included within the zone known as the Austral. This zone occupies a position between the other great zones, all of which are in part included within the United States. The Club area, however, lies within two divisions known as the Transition and the Upper Austral, the other being known as the Lower Austral. In the East these divisions have been named the Alleghenian Area of the Transition and the Carolinian Area of the Upper Austral. Southern New Jersey is entirely within the Carolinian Area but the counties in Pennsylvania along the Kittatinny range are in the Alleghenian Area.

The distribution of the species within the Club range cannot fail to have been noticed to some extent at least by the Club members. Some species never seem to extend beyond the respective areas in which they occur, excepting possibly along the lines separating the zones where they may overlap, while others

L. Huron, etc.", and describes *A. glaucophylla*, *Link.* as "*A. Polifolia* mostly of Am. auth., not L." and defines its range as "Lab. to Man., s. to N. J., Pa., and Minn."

are abundant, frequent, etc., throughout as the case may be. Dr. I. S. Moyer in his Flora of Bucks county (History of Bucks county, Wm. W. H. Davis, 1905. Appendix. Revised for the author by Dr. C. D. Fretz) says: "In studying the Flora of the county, one fact is at once apparent, namely, the great difference in the vegetation of the northern and the southern portions. We find that upwards of ninety native plants have not been collected north of Yardleyville, and on the other hand about one hundred and fifty native plants have not been found south of that place. This interesting fact demonstrates that a line dividing the more distinctively northern from the southern species of Pennsylvania would pass through Bucks a little to the north of that point. Many northern forms seem to have their southern limits in our county, except as they extend further south in the mountains to the west of us. A few western plants have here their eastern limit, notably thc Papaw, and narrow-leaved Horse Gentian. A small number of eastern plants also have their western limit. A comparison of the catalogue with Gray's Manual will make these facts more apparent"; this bears the date of June 24, 1876, and we find here an attempt at a reasonable explanation for certain apparent facts. The explanation is found in the fact that the county of Bucks lies within both the Transition and Upper Austral Areas of the Austral Zone. The Transition zone is the ground upon which the species of the great Boreal and Austral zones meet. It is characterized according to Merriam "as a whole by comparatively few distinctive animals and plants, but rather by the occurrence together of southern species which here find their northern limit, and northern species which here find their southern limit." Lehigh county is included entirely within the Alleghenian Area of the Transition and in common with all the northern counties of the Club range in Pennsylvania is of great importance in marking the northern or the southern limits as the case may be of some species.

For purposes of better definition of positions, political positions by reason of their more universal recognition are of great value, but the usual local lists mean little unless interpreted by all the factors which have to do with plant distribution. More

often than not there is some physical feature of an area covered by a local flora which if properly explained would account for certain records. Certain species credited in the Bucks county flora to Tullytown, Bristol, etc., are characteristic species of southern N. J., rather than of Bucks county as a whole, and their occurrence can be explained by what has previously been stated in reference to the flora of this county, Montgomery county has its "bit of Jersey" represented partly at least by a bog near Willow Grove. In Lancaster county the Dillerville swamp is another illustration. All of these counties lie in part within both the Transition and the upper Austral zones. There is no reason why the Club should not attempt to work out this problem and plot a line of demarkation between these zones within its range. A hint of how Merriam has approached these problems may be found in the following quotation. In speaking of the extension of one zone into another Merriam says: "These arms, like nearly all narrow northward prolongations of southern zones, do not carry the complete faunas and floras of the areas to which they belong, but lack certain species from the start and become more and more dilute to the northward till it is hard to say where they really end. Their northward boundaries, therefore, must be drawn arbitrarily or must be based on the presence or absence of particular species rather than the usual association of species."

The new records which the vicinity of Bangor, Northampton county, has recently furnished are due to another factor entirely. Many of them are species of more or less frequent occurrence in the vicinity of the Terminal Moraine of the last ice invasion in New Jersey and Pennsylvania. The Terminal Moraine crosses the Delaware river at Belvidere and crosses the Kittatinny range near Big Offset. Upper Mount Bethel township is covered with glacial drift and as congenial habitats exist, more records of species not yet reported from this region are to be expected. The glaciated area touches the Club range at no other point excepting in Middlesex county, N. J. These examples of isolated physical features within political boundaries are quoted merely to show the desirability of natural treatment in local flora. Every possible factor should be studied which in any manner influences local flora.

In *Torreya* for October, 1909, Mr. Norman Taylor, Chairman of the Committee on Local Flora of the Torrey Botanical Club, has begun to present under the title "Local flora notes" some of the problems of importance. This article should be of interest to all the members of the Philadelphia Club. The activities of the Philadelphia Botanical Club have already resulted in the Hand-book of the Flora of Philadelphia and Vicinity, a work which has undoubtedly stimulated much inquiry in systematic botany within the Club range. Like all works of this character, a revision will sooner or later be attempted. Is there any reason why such a revision should not be entirely modern and include all the factors of plant distribution some of which have been touched upon in this article?

More than a definition of ranges should be attempted. Full data relative to every species found within the Club range should be gathered and preserved whether it is possible to use them in such a revision or not. Every record should be backed by a specimen which should always remain a part of the Club herbarium, and there only remains to be devised some system of tabulating them if it is desired to undertake the revision proposed. A map of fair size of the Club range giving necessary physical and political features could be drafted and printed on suitable sheets similar to those of the United States, etc., which can be purchased for such purposes from the Cambridge Botanical Supply Co. Each species should be allowed a sheet, and as soon as it is received each record should be noted by a dot of some colored ink at the proper place on the sheet. As records accumulated it would be possible to see at a glance the distribution of any species so far as recorded by the Club. It is safe to say that neither *Quercus digitata* (*Marsh*) *Sudw.* nor *Quercus Phellos, L.* grows in Lehigh county, but how far northward toward the mountains do they reach? A glance at such a sheet as has been suggested would give the total of the Club's records instantly. Observations and other data relative to the species would of course have to be preserved on a sheet, or sheets, which could be made as easily accessible.[3]

[3] Since this article was written a letter has been received from Mr. S. S. Van Pelt in which referring to a meeting of the Club held the evening before (Nov.

The care of a record of this description once it is properly started should not involve a great amount of work. However, to accomplish the proper results it would be necessary to interest all the Club members. The Club's range is large in proportion to the number of members, it is true, but each member should be made to see the importance of establishing permanent records upon which all future work may be based.

The writer of this article has selected Lehigh county as the field of his activities on local flora, in the same way that the Club has selected its larger range. The area is entirely too large to work with any degree of thoroughness in the time allotted. In this respect the conditions are like those governing the Club's activities. A number of species new to the Club range are to be found in Lehigh county. The writer is little interested in having Lehigh county receive credit for these species which are apparently to be found only within its borders. He is interested rather in studying them in their relation to the flora of the surrounding territory so that their occurrence at that particular place may be accounted for.

This article has been inspired then by a firm belief in the importance of applying to the study of local flora all the known factors of plant distribution some of which have been so briefly sketched. If it create among the members of the Club an interest in this view, it will have served the purpose for which it was written. The coöperation of all the members will be a necessity if the best results are to be expected. In a work of this kind the value of association, especially in its influence on each individual member, can not be overestimated. It is hoped that the difficulty of presenting such a large subject within the scope of such a brief article will be appreciated, and that due allowance will be made for any deficiencies in treatment.

24, 1909), he writes: "W. Stone showed last night some rough charts of distribution of N. J. plants, about 18 inches in size each way, filling in with a dot every recorded station for certain plants, one sheet to a species, and it certainly exhibited in a graphic way in rough green and red colors how they are restricted to their own individual areas. This was most interesting." Mr. Stone's work as an illustration of the value of the form of record suggested is referred to with great pleasure.

Noteworthy Plants in the Suburban District West of Philadelphia.

BY EDWIN B. BARTRAM.

The country accessible from the main line of the Pennsylvania Railroad west of Philadelphia for a distance of twenty-five miles presents many features of interest to the systematic botanist. Generally north of and parallel with the railroad the North and South Valley Hills bordering the Chester Valley lend variety to both the landscape and the flora. South and east of the hills a series of streams beginning with Cobbs Creek on the east and including Brandywine Creek to the west intersect a section in which the botanical characters are being rapidly modified by suburban operations. Anticipating an extension of this influence, some notes relative to the present distribution of the more interesting species exclusive of the serpentine flora, which has little in common with the rest of the region, may be worthy of record:

ASPLENIUM EBENOIDES R. R. SCOTT.—Several plants near Valley Store, Chester Co. Probably more widely distributed on limestone in the Chester Valley, where both *Camptosorus rhizophyllus* (*L.*) *Link* and *Asplenium platyneuron* (*L.*) *Oakes* frequently grew together.

PELLAEA ATROPURPUREA (L.) LINK.—Occurs sparingly north of Frazer, Chester Co., on limestone rocks facing the north.

CAMPTOSORUS RHIZOPHYLLUS (L.) LINK.—Frequent on limestone at Valley Forge and west along Valley Creek, Chester Co.

DRYOPTERIS CRISTATA CLINTONIANA (D. C. EATON) UNDERW.—Locally abundant in wet woods west of Wayne, Delaware Co.

DRYOPTERIS GOLDEANA (HOOK) A. GRAY.—Colony of about six strong plants in low woods north of Radnor, Delaware Co.

EQUISETUM SYLVATICUM L.—Boggy meadow near Ithan, Delaware Co., also at East Downingtown and Dorlan, Chester Co.

EQUISETUM HYEMALE L.—Low woods north of Radnor, Delaware Co., also near Frazer, Chester Co.

LYCOPODIUM COMPLANATUM L.—Sterile plants rather frequent in extensive patches. Any records of fertile plants in this section would be interesting.

POTAMOGETON PUSILLUS L.—Earle's dam near Darby Creek, Radnor Twp., Delaware Co. Not common.

POTAMOGETON CRISPUS L.—Very abundant in the lower reaches of Valley Creek, also in the smaller streams through the Chester Valley.

SAGITTARIA LATIFOLIA PUBESCENS MUHL.—Locally common along Darby Creek in Radnor Twp., Delaware Co., and north of Downingtown, Chester Co.

SAGITTARIA LONGIROSTRA (MICHELI.) J. G. SMITH.—In many of the swamps south of Wayne, Paoli and Downingtown this species replaces the common *S. latifolia Willd.* entirely. It also occurs sparingly in the Chester Valley. Any further records extending the local range of this plant would be very welcome.

ANDROPOGON ELLIOTTII CHAPM.—Clearings in the hills north of Wayne and Strafford, Delaware Co. The relatively broader sheaths and congested inflorescence readily distinguish this grass from *A. virginicus L.* with which it is commonly associated.

PANICUM FLEXILE (GATTINGER) SCRIBN.—Local in old pastures in the Chester Valley where limestone approaches the surface.

ERAGROSTIS FRANKII STEUD.—Roadsides near Bradford Hills, Chester Co. Not observed elsewhere.

ELEOCHARIS ACICULARIS (L.) R. & S.—Rare along Brandywine Creek north of Downingtown.

SCIRPUS POLYPHYLLUS VAHL.—Margin of Fennimore's Pond near Wayne, Delaware Co.

CAREX RIPARIA CURTIS.—Swamp near Ithan, Delaware Co.

JUNCUS DUDLEYI WIEGAND.—Wet clay meadow near St. Davids, Delaware Co. When this rush becomes better known additional localities will no doubt be reported; at present the local distribution of the plant is unknown.

MELANTHIUM VIRGINICUM L.—Swamp near Ithan, Delaware Co. Scarce and local.

MELANTHIUM LATIFOLIUM DESR.—Frequent in woods along Darby Creek but never observed in flower.

ALLIUM TRICOCCUM AIT.—Ithan Creek south of Bryn Mawr Ave., and common along Brandywine Creek near Birdell, Chester Co.

CYPRIPEDIUM PUBESCENS WILLD.—Rich woods along Darby Creek, Radnor Twp. A small-flowered form corresponding to the description for *C. parviflorum Salisb.* was found in the same locality. The two forms while dissimilar in the extremes could not be satisfactorily separated.

APLECTRUM HYEMALE (MUHL.) TORR.—Rather frequent in rich woods along Upper Darby Creek.

CORALLORHIZA WISTERIANA CONRAD.—Wooded hillside near Ithan, Delaware Co. locality since destroyed. The colony originally consisted of five plants in close proximity to a large rotten stump.

SALIX DISCOLOR MUHL.—Not common. Peculiar forms with pubescent mature leaves suggesting some relationship with *S. humilis* occur in the South Valley Hills.

BETULA ALLEGHENIENSIS BRITTON.—A number of old trees along the west side of Brandywine Creek opposite Dorlan, Chester Co.

RANUNCULUS FASCICULARIS MUHL.—Not definitely known nearer than the east bank of the Octoraro Creek, Chester Co. Might be looked for successfully in the central or eastern part of the county.

CARDAMINE HIRSUTA L.—Known from only one station south of Bryn Mawr, Delaware Co., where it is sparingly established. Judging from the locality and environment, I should say it had been introduced here although it may be indigenous further south. Flowers and immature pods have been observed in mid January.

CARDAMINE ROTUNDIFOLIA MICHX.—Locally abundant in low woods along the Brandywine Creek near Birdell, Chester Co.

PODOSTEMON CERATOPHYLLUM MICHX.—Brandywine Creek north of Downingtown, Chester Co.

GEUM FLAVUM (PORTER) BICKNELL.—Open swamp near East Downingtown, Chester Co. Rare.

GEUM STRICTUM AIT.—Swamp near Ithan, Delaware Co. Almost extinct.

LESPEDEZA STRIATA (THUNB.) H. & A.—Wood road north of Wayne, Delaware Co. Does not appear to spread readily in this section and not likely ever to become as common as it is further south.

ERODIUM CICUTARIUM (L.) L'HER.—North bank of the railroad at Paoli, Chester Co.

LINUM SULCATUM RIDDELL.—Known only from the "sheep ranch" north of Radnor, Delaware Co. Here it is associated with *L. medium* (*Planch.*) *Britton* and *Andropogon Virginicus* L. on a dry open hillside. Apparently the only definite locality for this species in eastern Pennsylvania away from the mountains.

ACER SACCHARUM MARSH.—Large trees are frequent along Valley Creek north of Malvern, Chester Co.

LECHEA INTERMEDIA LEGGETT.—Collected in the fall of 1908 near Bradford Hills, Chester Co., where it replaces *L. Leggettii Britt. & Holl.* in similar situations. Not previously known from the local territory. Further information relative to the distribution of this plant in Pennsylvania would be very welcome.

VIOLA LE CONTEANA DON.—Near Dorlan, Chester Co. with *Betula allegheniensis.* Rare or absent further eastward.

TRIENTALIS AMERICANA (PERS.) PURSH.—Sparingly established at Marten's Dam north of Wayne, also reported from Frazer. Not common and likely to be soon exterminated altogether.

GENTIANA CRINITA FROEL.—Wet glade in a cedar thicket west of Wayne, also swamp near Centerville, Chester Co.

GENTIANA VILLOSA L.—Wood road on a dry ridge north of Radnor.

BARTONIA VIRGINICA (L.) B. S. P.—Sterile knolls on the ridges north of Radnor where it is associated with *Sarothra gentianoides L.* and the Reindeer Lichen. This plant seems to be identical with specimens from the sphagnum bogs of New Jersey.

KALMIA ANGUSTIFOLIA L.—Local near the tops of the North

Valley Hills west of Valley Forge, but rarely if ever producing flowers.

ASCLEPIAS TUBEROSA L.—Local but not uncommon throughout the region. A form from the country around Bradford Hills with smaller upper leaves disposed in pairs seems to correspond closely with *A. decumbens*, a questionable species.

STACHYS TENUIFOLIA WILLD.—Distributed generally along Brandywine Creek north of Downingtown but not known elsewhere. Evidently very local in its range.

MIMULUS ALATUS SOLAND.—Wet woods west of Wayne. Rare.

PEDICULARIS LANCEOLATA MICHX.—Open swamp near Centerville, Chester Co.

PLANTAGO ARISTATA MICHX.—Sandy roadside near Radnor Hunt, Delaware Co. Rare in eastern Pa.

WILLUGBAEYA SCANDENS (L.) KUNTZE.—Swamp near Centerville.

LACINARIA SPICATA (L.) KUNTZE.—Wet woods near Dorlan, Chester Co. Scarce.

SOLIDAGO SQUARROSA MUHL.—Plentiful near Valley Forge and at Bradford Hills, also found sparingly in the hills north of Radnor.

SOLIDAGO PATULA MUHL.—Locally common in swamps south of Wayne and Paoli, but apparently not known in other sections of the nearby local territory. The station at Tinicum is no doubt the result of plants or seeds washed down one of the streams that drains upper Delaware Co.

SOLIDAGO ALTISSIMA L.—Open ground near Frazer. The reduced thick upper leaves and rigid habit characterize this plant even at a distance.

BACCHARIS HALIMIFOLIA L.—Several pistillate plants on a hillside north of Malvern, Chester Co., where they have every appearance of being native. It would be interesting to know how much further inland this plant ranges and in what situations it occurs.

BIDENS INVOLUCRATA (NUTT.) BRITTON.—Open ground near Frazer where it has probably been introduced from the west through the agency of the railroad.

A Botanical Trip to the Welsh Mountains near Churchtown and Beartown Station, Lancaster Co., Pa.

BY JOEL J. CARTER.

In looking over the map of Lancaster county, the Welsh Mountains in Caernarvon township, with the Conestoga winding at their base, seemed to invite an inspection, especially as from few records seen, it had been neglected by systematic botanists. So one "rare" day in June, Messrs. Crawford, Van Pelt, Long and Carter met at the railroad station of Churchtown Road.

According to the U. S. topographical map, the elevation near the station is about 1000 feet. The rocks are chiefly quartzite. Churchtown lies about three miles north, on the north bank of the Conestoga creek. There the rock is limestone, which was not noticed south of the creek in this vicinity.

The original forest on the mountains has all been cut off and most of it made into charcoal and used in the iron furnaces which once did a flourishing business on the Conestoga at Churchtown. They are now a thing of the past, nothing but the ruins of the mills and dams remaining.

A bunch of the flowers of *Magnolia virginiana* in the hands of a person at the station gave promise of something, and a question of where gathered elicited sufficient information to enable one to find the place after some search; quite a lot of them were growing in a swamp on the south slope of the mountains caused by a few small springs. There seemed to be little else of interest excepting *Carex folliculata L.* and *Arisaema pusillum;* one or two plants of the latter were remarkable from their size, one plant fully 3 feet high and the stem $1\frac{1}{2}$ inches in diameter, much larger than the usual size of the *A. triphyllum*, while usually the *A. pusillum* is the smaller plant. The constant characteristic of the cylindric spadix, black hood of spathe and leaves green on both sides, make this plant a good species in

the writer's opinion; it also blooms a little later than the *A. triphyllum.* In a railroad cut near the station was a large patch of Cranberry *Oxycoccus macrocarpus* and close to the Kaolin quarry *Pogonia ophioglossoides, Tissa rubra* and *Lycopodium inundatum;* further along *Aralia hispida* and *Chamaenerion angustifolium.*

On the north slope of the mountains along a spring run was a tree of *Betula allegheniensis;* also *Carex leptalea* was observed. On the bank of the Conestoga several *Carices* were found: *Carex granularis, C. intumescens, C. squarrosa, C. lanuginosa* and *C. cristatella,* also *Scirpus sylvaticus.* In the woods near the creek *Scirpus planifolius,* and in a field near the village *Convolvulus japonica.*

After a dinner at Churchtown, which evidently was relished by all of us, a walk to Beartown and back was decided upon. Near the village, on the limestone, quantities of *Pellaea atropurpurea* were observed together with a bunch of *Sedum acre.*

South of the creek in a rocky field we collected *Celtis crassifolia* and *Valerianella locusta,* and *Fragaria americana* on the roadside.

Our plan the following morning was to go up the Conestoga, but a very heavy rain flooded the lowlands, so that we literally had to "take to the hills," where we found not much of interest, though plenty of the two species of *Liparis; Cypripedium acaule* and *Isotria verticillata* were noted.

Along the railroad, between Churchtown Road and Beartown Station, more of interest was found: *Prunus pennsylvanicus, Viola lanceolata, Camelina sativa* and *Sisymbrium altissimum,* and in a ravine *Carex hystricina.* West of Beartown Station was a *Sphagnum* bank, which was a veritable Jersey swamp, on a small scale, with such orchids as *Arethusa bulbosa, Limodorum tuberosum, Pogonia ophioglossoides, Gymnadeniopsis clavellata, Blephariglottis ciliaris,* great quantities of *Rubus hispidus* and *Drosera rotundifolia.*

During a later trip by Messrs. Crawford and Carter additional plants noted were *Calamagrostis cinnoides, Andropogon corymbosus, Rynchospora glomerata, R. alba, Rhexia virginica, Eupatorium verbenaefolium,* and the variety *Saundersii, Bartonia lanceolata, Blephariglottis lacera, Xyris flexuosa, Rhus venenata;* in a ravine *Viburnum venosum,* and along the railroad track *Euphorbia hirsuta.*

Pinus serotina Michx. in Southern New Jersey and other Local Notes.

BY BAYARD LONG.

During a trip on November 20, 1909, into Gloucester and Salem counties, to examine, under the guidance of Mr. Charles D. Lippincott, the southernmost New Jersey stations for *Pinus Strobus* and *Tsuga canadensis*, my attention was drawn to a pine superficially much like *P. rigida*, but with pale leaves, quite 15–20 cm. in length. Comparison with *P. rigida* already collected on the trip, showed, in addition, rather longer leaf-sheaths and, the spines of the cone-scales to be very minute and mostly deciduous. Subsequent examination of material at A. N. S. Phila. showed the pine to be without question referable to *P. serotina Michx.*, not previously reported north of Virginia. Specimens were also compared and identification verified at the N. Y. Botanical Garden by Dr. Small and Mr. Harper. The new locality is on the margin of a swamp about two miles northwest of Swedesboro, Gloucester county, N. J. Though specimens were collected from only a single tree, other trees nearby, with long needles were noted and are doubtless the same species.

Pinus Taeda L.—The occurrence of *P. Taeda* in southern New Jersey was for some time questioned; it may be advisable to report its status as known to the Philadelphia Botanical Club. Apparently the first record was by Gifford Pinchot at Town Bank, Cape May—a single tree (Garden and Forest, x, 192). In the Plant World for November, 1897, Dr. Arthur Hollick reports another single tree at Cold Spring school-house, near Cape May.

On June 30, 1909, a pine, doubtfully at the time referred to *P. Taeda*, was collected by the Club, at a little school-house, west of Cold Spring. The leaves measured frequently 20–24 cm. in length and the new sheaths 2 cm., but the open cones

were quite ovoid and only about 7 cm. long—not at all the characteristic long subcylindric-ovoid cone. Later in the day, about 1.5 miles west of Cold Spring, trees, unquestionably *P. Taeda*, were found in some numbers. These had leaves 17–18 cm. in length, new sheaths 2–2.5 cm., and cones about 10 cm.

Again, on August 11, 1909, about three miles west of Cape May Court House, near Dias Creek, a station of *P. Taeda* was discovered. The trees were quite abundant, of all sizes and flourishing. Leaves about 17 cm. in length, new sheaths 1.5–2 cm., and cones 10 cm.

An interesting discovery was made while comparing these pine-collections with material at the New York Botanical Garden. The specimens collected at the school-house, by members of the Club, are quite identical with Hollick's material, and in all probability are from the same tree. Though the cone is short, a study of the scale and spine characters show that it is to be referred to *P. Taeda*, as Dr. Hollick correctly reported it. Rather similar short, ovoid cones have been collected by the writer at Ellendale, Delaware.

ANDROPOGON ELLIOTTII CHAPM.—Two sheets in the Herb. Philadelphia Botanical Club from Gloucester county, New Jersey, have been so named by Mr. Geo. V. Nash:

Swedesboro, September 2, 1894, Charles D. Lippincott; Mickleton, September, 1895, Benjamin Heritage.

During the past year plants apparently referable to the same species have been collected by the writer from:

New Jersey: Sharptown, Salem county. Pennsylvania: Ashbourne, Montgomery county; Nottingham, Chester county. Delaware: Vandyke, New Castle county.

ELEOCHARIS MELANOCARPA TORR.—An additional locality for this very rare species in New Jersey was discovered by Witmer Stone and the writer, south of Millville, Cumberland county, June 6, 1909. The plant covers large areas about the margin of a pond-hole not far from Maurice River, but apparently does not fruit nearly so freely as at the Delanco locality (the only other New Jersey station known to us). Culms with proliferous tips were noted.

PSILOCARYA NITENS (VAHL.) WOOD.—Discovered by O. H.

Brown near West Cape May, New Jersey, October 6, 1908, growing on the muddy bottom of a dried-up pond. Not previously reported from the state. Specimen in Herb Philadelphia Botanical Club.

SCIRPUS LINEATUS MICHX.—Apparent absence of record of this species in southern New Jersey makes it advisable to note:

New Jersey.—New Egypt, Ocean Co., June 29, 1908, J. H. Grove; Winslow Junction, Camden Co., July 15, 1909, W. Stone. There may also be added the Pennsylvania record: Lancaster, June 22, 1909, B. Long.

SCIRPUS ATROCINCTUS FERNALD.—A frequent plant of Sullivan county, Pa., the Pocono, etc., but only this last season known to us south of the Blue Mountains, in the Club territory. Brought to the notice of the writer from material found in the herbarium of Harold W. Pretz of Allentown, Pa. Afterward noted rather frequently and collected along the Lehigh River, in the vicinity of Treichler and Rockdale, in both Northampton and Lehigh counties.

RYNCHOSPORA SMALLII BRITTON.—Specimens collected by the writer from a marsh in the serpentine area near Marshallton, Chester county, Pa., on Sept. 29, 1908, were submitted to Dr. Britton for verification. The same species was again found on August 10, 1909, growing abundantly on the boggy margin of the pond at Delanco, Burlington Co., N. J., near the *Scirpus Torreyi*, *Eleocharis melanocarpa*, *E. Robbinsii*, etc., discovered by members of the Club in 1907 (Proc. A. N. S. Philada., October 20, 1908). Plants in Herb. Philadelphia Botanical Club, collected by Dr. T. C. Porter at Lincoln University, Chester county, Pa.. Aug. 6, 1892, also represent this species.

CAREX HARPERI FERNALD.—A sedge resembling a robust *Carex leptalea*, collected by the writer in the Cape May Peninsula, drew attention to *C. Harperi*. Examination of local material in the Herb. A. N. S. Philada. and Philadelphia Botanical Club, shows the following localities:

New Jersey.—Clementon, June 6, 1906, S. S. Van Pelt; Lindenwold, Camden county, June 15 and 26, 1906, Van Pelt; Forked River, N. J., June 6, 1895, Alexander Mac Elwee; Goshen, Cape May Co., Aug. 6, 1909, Van Pelt; Bennett, Cape May Co., June 29, 1909, B. Long.

Pennsylvania.—Lancaster Co., 1884, James Galen; Llewellyn, Delaware Co., June 27, 1906, Van Pelt.

About the latitude of Philadelphia seems to be the most northern extension of the range.

CAREX BICKNELLII BRITTON.—The apparent rarity, and only late discovery of this handsome sedge within the Club range, make it worth noting that it is frequent on dry serpentine areas about Williamson School, Delaware county, Pa. Discovered by S. S. Van Pelt, July 1, 1908.

ERIOCAULON PARKERI ROBINSON.—As data illustrating the range extensions within the Club territory, of this plant described from Camden, New Jersey (and generally noted from there only, in the manuals), the following stations may be noted:

Pennsylvania.—Tinicum [Delaware county], Charles E. Smith Herb.; Torresdale, November 10, 1904, S. Brown.

New Jersey.—On Delaware, below Red Bank, August, 1864, Charles E. Smith Herb.; Bridgeport, Gloucester county, August 12, 1905, S. Brown; Fish House, Camden county [probably the locality best known to present-day botanists]; Millville, Cumberland county, on Maurice River, October 7, 1909, B. Long.

Maryland.—Havre de Gras, September 1, 1906, C. S. Williamson.

These data, combined with localities noted in Delaware (Torreya, ix, 162), would lead us to expect to find the plant throughout the Delaware Bay system (and possibly the Chesapeake Bay also) within the limits of tide-water.

UVULARIA NITIDA (BRITTON) MACKENZIE.—Though unquestionably closely allied to *U. puberula* Michx. of the mountains of Virginia and southward, it does not seem altogether satisfactory to refer this pine-barren plant of New Jersey to that species. Additional localities may be worthy of mention of so apparently restricted a plant:

Point Pleasant, May 30, 1897, Stewardson Brown; Brown's Mills, April 30, 1905, Alexander MacElwee; West Creek, Ocean county, May 29, 1907, B. Long; Manahawkin, Ocean county, May 29, 1907, B. Long.

MYRICA CERIFERA L.—It had been thought that C. S. Williamson first collected this species in New Jersey in 1908, but, though not credited to New Jersey in the New Gray, Prof. Fernald tells me that he has specimens from Cape May, collected by Wm. M. Canby, plants which were not mounted and had not been examined at the time of the preparation of the new manual. Since Mr. Williamson's collection the plant has been found quite frequently through Cape May county, by members of the Club. In the local herbarium are flowering and fruiting specimens from Cape May, Cold Spring, Dias Creek, Cape May Court House, and Palermo. But thus far it has not been discovered north of Cape May county. Numerous quite arborescent individuals have been noted. Much of the foliage is distinctly evergreen and forms a striking contrast to the common *M. carolinensis* Mill., especially in winter and early spring.

Notes on Local Ferns.

BY W. A. POYSER.

DRYOPTERIS CRISTATA X MARGINALE DAV.—This widely distributed and probably most common of all our eastern hybrids, was not until its discovery by Mr. D. W. Hamm in Lehigh county, and since by the writer in Delaware county, recorded from Pennsylvania. It is strange that it was not "turned up" long ago, as it was soon after description recorded from New Jersey, New York and the New England States. In the little stretch of bushy swamps where the Delaware county plants grow, one parent—*cristata*—is abundant and luxurious, in fact more so than in any other local station known to me, while *marginale* is a mile away. The fronds of the hybrid when first discovered in 1907 were considerably longer and broader than any I have seen from other localities, averaging with stipe about forty inches long. A somewhat unusual monstrosity, two fronds from one stipe, the division just below the lowest pinnae, was collected. In 1908 the plants were trampled and almost destroyed by cows, the effect of which was evident in the fronds of the past summer which were exceedingly small.

DRYOPTERIS CRISTATA X SPINULOSA INTERMEDIA DOWELL.—(*D. Boottii* [*Tuck.*] of lists). Occurs throughout the state, but is rather rare locally. The most recent collections seem to be from Delaware county by Mr. E. B. Bartram and the writer, independently. I am mentioning this hybrid principally to ask local botanists to look carefully for another cross closely related to it—*cristata x spinulosa*.

To Prof. Dowell we owe the separation and elucidation of these two combinations, long confused as synonomous under *Dryopteris Boottii*. *Dryopteris cristata* crossed with the typical *S. spinulosa* has long been known in Europe and as pointed out by Prof. Dowell, occurs in the Eastern United States as well.

It is probable that some of our state or local records of *D. cristata x spinulosa intermedia* are based upon specimens that are really *cristata x* type *spinulosa.* The writer would be glad to examine any material. The fronds should be gathered late in June or during first week of July before the indusium withers. The so-called *Boottii* has a glandular indusium, while the other combination has a glabrous one.

DRYOPTERIS CRISTATA X GOLDIANA BENEDICT.—Peculiar to Delaware county and described from specimens collected by the writer in Swarthmore township. This hybrid bears a great superficial resemblance to *Dryopteris Clintoniana*, for which it was first mistaken by the writer. It is linked to *Goldiana* more by the indusium, stipe and leaves, than by the other characteristics.

DRYOPTERIS GOLDIANA X SPINULOSA BENEDICT.—A few plants with Swarthmore colony of the preceding, and like it, peculiar to Delaware county. Probably the most beautiful of the hybrid *dryopterids.* (Originally described as *Dryopteris Clintoniana silvatica Poyser.*)

In connection with the two last named hybrids, it is of interest to note, that of the alleged parents, *Goldiana* does not occur (known to writer) within several miles, and is not a common fern locally. The nearest stations are southwest of Newtown Square and near Sycamore Mills. *Dryopteris spinulosa* and *D. cristata*, while in the general locality, do not occur immediately with their alleged progeny. Any doubt of the correctness of a hybrid determination engendered by the absence of the supposed parents, is aptly explained away by the fact that they *may* have existed in the past and have since disappeared. Again, it is possible for spores to be carried for miles by the wind; while the usual microscopic characters are used in hybrid determination, most stress is laid upon the cellular structure and other characteristics of the indusium, and the generally, if not always abortive spores. To the writer, the aborted spore is the strongest characteristic in favor of hybridity. This abortiveness alone removes some described hybrids from the category of possible mutants.

Eliminating *Dryopteris noveboracense, D. thelypteris, D. simu-*

lata, *D. fragrans* and *D. dilatata*, every combination (about fifteen) of the remaining species in the genus *Dryopteris* occurring in eastern North America, has been reported. While the writer willingly admits that ferns hybridize freely, yet it requires some imagination (with his present knowledge) to accept a cross such as *Dryopteris cristata x cristata Clintoniana*, even though he has examined specimens. Or, *Dryopteris spinulosa x spinulosa intermedia!* The glands of the indusium of this last are said to be fewer. Possibly the future may bring enlightenment.

DRYOPTERIS SPINULOSA (L.) KTZE is not included in Keller and Brown's Flora, but I find it not uncommon. It can be distinguished at a glance from the variety *intermedia*, being not so finely cut, fronds almost stiffly erect, pinnae oblique to the rachis and indusia glabrous. The variety has spreading fronds more finely cut, pinnae at right angles to the rachis, and with indusia beset with stalked glands. The variety seems to prefer the deep rich wood, while the type is more apt to be found on more or less moist, shaded rocky slopes.

OSMUNDA CINNAMOMEA L.—Quite a number of varieties of this species have been described, with two exceptions based upon the cutting of the frond. Of these two, the variety *frondosa* is a form intermediate between the normal sterile and fertile fronds. The other, and to the writer the most unusual form of variation, is the forma *glandulosa* of Waters described from specimens collected near Baltimore. Shortly after the publication, Mr. Saunders discovered the form at Clementon, New Jersey, where the writer finds it in the low woods southeast of the railroad station, on the bank beyond the "Iron Spring," while the normal plant occurs with it, the form does not seem to extend to the more moist floor of the wood. The lower side of the fronds are thickly covered with minute glands, quite evident to the eye and "velvety" to the touch. The glands give the surface of the frond a silvery sheen in sunlight and later in the season may turn dark giving a rusty tinge. I am under the impression that the form is peculiar to the type locality and Clementon.

BOTRYCHIUM TENEBROSIUM A. A. EATON.—A recent addition

to our state flora, collected by Mr. Daniel W. Hamm in Lehigh county. My identification was confirmed by Mr. Eaton. A small inconspicuous plant of moist shades, by some considered a lax form of *Botrychium neglectum Wood*, and by others linked with *B. simplex Hitch.* because of its large spores.

OPHIOGLOSSUM VULGATUM L. as it occurs in Pratt's Swamp, Delaware county, is peculiarly interesting from an ecological view. The colony extends from the short grass of the higher ground down to the more moist level among the tall grasses and between the hummocks bordering the muck. In study I have separated the colony into three zones or groups, which must be understood to be arbitrary as no real line of demarcation exists, one grading into another by indefinable steps. On the dryer ground among the grasses often cropped by cattle, the species occurs small but fruitful, 5 or 6 inches, simulating *O. arenarium E. G. Britton.* In fact, only the greater number of basal veins to the leaf seemed to separate it from that species—the strongest characteristic of *arenarium.* The form could scarcely be said to be gregarious in the strictest sense, however, and in only one case did I find two plants from one rootstock. This is not an uncommon characteristic of the genus as a whole. Among the tall grasses the normal form with ovate leaf reached its maximum size. Here some of the plants attained a height of fifteen and sixteen inches. In this zone some were observed in which the sporangia were fewer than normal and the apex of the axis flattened and leaf-like. Such a reversion, in the aborting of the essential organs, seems remarkable in a plant of such simplicity. In the third zone between the hummocks, where the plants thrust themselves upward through the prostrate stems of grasses of previous years, the most unusual variation occurred. The leaf became more or less acutely lanceolate and the sporangia were perhaps a week behind the other zones in development. The energy of the plants was seemingly expended upon the leaf, which in the most extreme specimen was eight inches long from apex to common stalk and three-quarters of an inch wide. The average was less than half this length, but all were characteristic of the zone.

General Notes.

Additions to the Herbarium.—During the year just closed 2,160 sheets were added to the Club Herbarium, having been received from twenty-five contributors, a good showing of activity for one season.—S. S. Van Pelt.

A Tuckahoe from Fairmount Park.—There has recently been received at the Academy a Tuckahoe, *Pachyma cocos*, which from its locality and size seems worthy of note. The specimen, which was collected in Fairmount Park by Capt. James Henry Workman, measures 1.15 meters in circumference, with a diameter of 4.2 decimeters at its broadest portion. So far as we have been able to ascertain the species is not recorded north of New Jersey.—Stewardson Brown.

New Plants for Southern New Jersey.—On June 30, 1909, while collecting plants in the vicinity of Bennett, Cape May county, N. J., in company with members of the Club, we found in several spots a delicate little *Panicum*, quite different from anything with which we were familiar. I suspected it to be *P. Wrightianum*, and so it proved to be upon submitting specimens to Mrs. Agnes Chase, of the U. S. Department of Agriculture. In the same vicinity I discovered a cluster of some half dozen plants of *Pogonia divaricata*, a species previously recorded from Basto and Quaker Bridge, but not collected in New Jersey for many years, and unrepresented from the state in the Academy's herbarium.—Witmer Stone.

Brachiaria digitarioides from New Jersey.—Some years ago I recorded this species from Cape May county, but the specimens proved to be *Panicum condensum*, a species not previously known from New Jersey, and not given in the manuals. This error I pointed out later [Proc. Acad. Nat. Sci., 1908, p. 458]. It is now my privilege to again report *Brachiaria* from the

county on the basis of unquestionably authentic specimens collected by Mr. O. H. Brown near Cape May City on August 12, 1908.—WITMER STONE.

Hydrocotyle rotundifolia Roxb. in the Vicinity of Philadelphia.—In the contributions from the United States National Herbarium, vol. xii, part 10, the occurrence of the above species in North America is recorded for the first time. Dr. Rose states that the plant has been familiar to him for some years in lawns surrounding the National Museum where it is thoroughly established; its occurrence in lawns at West Chester, Pa., and Louisville, Ky., is also noted. During the past summer my attention was attracted to the species growing in my own lawn at Germantown, Philadelphia, where it is apparently thoroughly established and spreading freely by seed as well as stolons. Mr. Arthur N. Leeds has reported the plant as abundant on his lawn at Germantown, and Mr. Joseph Crawford records it as very abundant on the lawns of the Drexel Estate near Lansdowne, Pa. It is probable that the plant will be found to be more generally distributed through our region than we are aware.—STEWARDSON BROWN.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1909

January 28, 1909. Fourteen members present. Mr. Van Pelt spoke of the plants collected during several trips to Northampton Co., Pa., during the past year, illustrated with specimens on the wall.

February 25, 1909. Twelve members present. Dr. Samuel P. Seese, Lansdale, Pa., was elected to membership. Mr. Bartram described a trip to Wilmington, N. C., made during October last, illustrating his remarks with some of the specimens collected.

March 25, 1909. Ten members present. Mr. Brown described a trip taken by him during the past summer to the headwaters of the Saskatchewan and Athabaska rivers, showing specimens of some of the more interesting plants collected. Mr. Schumo described the method of growth of the Mangrove, *Rhizophora mangle L.* as observed by him during a recent visit to the island of Grenada, illustrating it with specimens of the fruit and young plant.

April 22, 1909. Thirteen members and five visitors present. Harold W. Pretz, Allentown, Pa., and William Nelson, 2114 Morris St., were elected to membership. Miss Atkinson showed a number of specimens of violets collected by her at Berwyn, Pa., which were commented on by Mr. Stone.

Mr. Van Pelt spoke of some plants collected at Spring Mount, Pa., by Mr. Long and himself.

Mr. Stone described a recent visit to Plummer's Island in the Potomac River, near Washington, D. C. Contrasting the flora with that of the lower Susquehanna which it closely resembles; some striking differences were in the occurrence of *Trillium ses-*

sile L., *Erythronium albidum Nutt* and *Bicuculla canadensis* (*Goldie*) *Millsp.* on the Potomac which do not occur on the Susquehanna, while *Magnolia tripetala L.* and *Tsuga canadensis* (*L.*) *Carr.* which are characteristic of the lower Susquehanna Valley, do not occur on the Potomac. Mr. Arthur N. Leeds spoke of a recent canoeing trip on the Blackwater River, Va., when he noted two patches of *Camptosorus rhizophyllus* (*L.*) *Link* growing in the moss on the bases of the gum trees, which is quite contrary to the habit of the plant as described in the books. Mr. Bartram recorded the collection of *Bassia hirsuta* (*L.*) *Anchers* at Seaside Park, N. J., the only other record for the occurrence of this Old World halophyte in this country is on the South Boston Flats.

May 27, 1909. Ten members and two visitors present. Mr. Williamson described the flora in the vicinity of Lopez, Pa., some specimens collected at Ganoga Lake in the same region were shown and commented on.

September 23, 1909. Fourteen members and two visitors present. The death of Prof. Ferris W. Price on September 22, 1909, was announced by the chair. Mr. Brown read a brief sketch of the life of the late Thomas Meehan prepared for publication in the Academy's Proceedings. Mr. Van Pelt spoke of the plants on the wall which represent some of the most interesting additions to the herbarium gathered during the summer including *Ilex monticola mollis* (*A. Gray*) *Britton*, *Carex setifolia* (*Dewey*) *Britton*, *Mimulus moschatus Dougl.*, an introduction from the west, *Triphora trianthophora* (*Sw.*) *Rydb.* and *Quercus imbricaria Michx.* from Lehigh Co., Pa. ; *Dentaria diphylla Michx.* and *Clintonia borealis* (*Ait.*) *Raf.*, from Bangor, Pa. ; *Collomia linearis Nutt.* from Angora, Philadelphia ; *Quercus Rudkini Britton*, *Eleocharis tortilis* (*Link.*) *Schultes*, *Pluchea foetida* (*L.*) *B. S. P.* and *Clitoria mariana L.* from lower Cape May County. Mr. Stone spoke of two other interesting New Jersey plants collected west of Bennett, Cape May County : *Pogonia divaricata* (*L.*) *R. Br.* and *Panicum Wrightianum Scribn.*, the latter species not previously recorded north of North Carolina. Mr. Brown showed specimens of *Hydrocotyle rotundifolia Roxb.* collected in his lawn in

Germantown, Mr. Crawford had recently collected the same species on the lawns of the Drexel Estate near Lansdowne, Pa. Mr. Long recorded *Amaranthus pumilus Raf.* at three stations on Long Beach Island, N. J., and also recorded *Gerardia auriculata Michx.* from a new station for the plant in this region, Laverock, Montgomery Co., Pa.

October 28, 1909. Fourteen members present. Robert F. Welsh, Germantown, was elected to membership. Mr. Van Pelt spoke of the plants of Northampton Co., Pa., in springtime, describing the region visited on several trips and showing the plants collected. Mr. Long gave his observations on the species of *Antennaria* occurring in the Bangor region : *A. neglecta Greene, A. neodioica Greene, A. fallax Greene* and *A. plantaginifolia (L.) Richards*, were more or less frequent. Mr. Long also recorded two recent weed introductions in newly graded ground at Ashbourne, Pa. ; *Hieracium pilosella L.* and *Hypochaeris radicata L.*, both were well established and spreading.

November 24, 1909. Eleven members and two visitors present. A paper by Joel J. Carter entitled "A Botanical Trip to the Welsh Mountains near Churchtown and Beartown Station, Lancaster Co., Pa." was read ; Mr. Van Pelt commenting on some of the specimens collected which were shown on the wall. Mr. Long spoke of a trip to Lancaster, Pa., in the early summer when the following plants of interest were collected : *Arrhenatherum elatus (L.) Beauv., Scirpus lineatus Michx., Juncus Dudleyi Wiegand, Rumex Patientia L., Allium cernuum Roth., Fragaria americana (Porter) Britton, Carex Jamesii Schwein, Carex oligocarpa Schk., Scutellaria nervosa Pursh, Prunus Mahaleb. L.* and *Xanthoxylum americanum Nutt.* Mr. Stone spoke of the distribution of plants in southern New Jersey, illustrating his remarks with maps of the state, colored to indicate the probable distribution of the several species considered ; the exact localities where specimens have been collected was noted. Mr. Long showed a specimen of *Pinus serotina Michx.* collected by him near Swedesboro, N. J. ; the species is not recorded north of North Carolina.

December 30, 1909. Annual meeting. Ten members present.

Election of officers for the ensuing year resulted in the choice of: President, Stewardson Brown; Vice-President, Edwin B. Bartram; Second Vice-President, Joel J. Carter; Secretary, Lee Sowden; Treasurer, Arthur N. Leeds; Curator, Samuel S. Van Pelt; Assistant Curator, Bayard Long. The evening was devoted to an examination of the specimens on the wall which included some of the more noteworthy additions to the herbarium during the year.

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club.

1910.

STEWARDSON BROWN, *President.*

EDWIN B. BARTRAM, *Vice-President.*

JOEL J. CARTER, *2nd Vice-President.*

LEE SOWDEN, *Secretary.*

ARTHUR N. LEEDS, *Treasurer.*

S. S. VAN PELT, *Curator.*

BAYARD LONG, *Associate Curator.*

ACTIVE MEMBERS.

JAMES F. BAKER, 938 Broadway, Camden, N. J.....*1896
EDWIN B. BARTRAM, Frazer, Pa..... 1906
GEORGE W. BASSETT, Hammonton, N. J..... 1904
GEORGE M. BERINGER, 5th and Federal Sts., Camden, N. J..... Founder.
DR. AMOS P. BROWN, 20 E. Penn St., Germantown, Pa..... 1892
STEWARDSON BROWN, Academy of Natural Sciences, Phila. Pa. Founder.
REV. J. S. BUNTING, Greenville, Del..... 1907
JOSEPH CRAWFORD, 16 E. Steward Ave., Lansdowne, Pa..... Founder.
FRANK MILES DAY, Mt. Airy, Philadelphia, Pa..... Founder.
RICHARD H. DAY, 419 N. 2nd St., Philadelphia, Pa..... Founder.
DR. JOHN W. ECKFELDT, 65th and Vine Sts., Philadelphia, Pa..... 1892
WILLIAM FINDLAY, 212 N. 8th St., Philadelphia, Pa..... 1908
DR. C. D. FRETZ, Sellersville, Pa..... 1892
BARTRAM W. GRIFFITHS, 4024 Green St., Philadelphia, Pa..... 1902

* Date indicates year of election to Club.

J. H. GROVE, New Egypt, N. J..... 1905
WILLIAM E. HAYDOCK, 4110 Parkside Ave., Philadelphia, Pa..... 1903
BENJAMIN HERITAGE, Mickleton, N. J..... Founder.
PROF. ZEPHANIAH HOPPER, 1925 N. 12th St., Philadelphia, Pa..... 1902
DR. A. ARTHUR JONES, 1810 Jefferson St., Philadelphia, Pa..... 1897
DR. IDA A. KELLER, Girls High School, Philadelphia, Pa..... 1892
DR. HENRY KRAEMER, 145 N. 10th St., Philadelphia, Pa..... 1898
DR. HENRY A. LAESSLE, 59th and Market Sts., Philadelphia, Pa... 1894
DR. H. PEARCE LAKIN, Lansdale, Pa..... 1906
MRS. H. PEARCE LAKIN, Lansdale, Pa..... 1906
HENRY A. LANG, 1633 N. 15th St., Philadelphia, Pa..... 1901
CHARLES H. LA WALL, 507 S. 42nd St., Philadelphia, Pa..... 1896
ARTHUR N. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
MORRIS E. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
DR. T. MONTGOMERY LIGHTFOOT, 5935 Greene St., Germantown, Pa. 1892
CHARLES D. LIPPINCOTT, Swedesboro, N. J..... Founder.
BAYARD LONG, Ashbourne, Pa..... 1906
MAYNE READ LONGSTRETH, 1823 Arch St., Philadelphia, Pa..... 1892
DAVID N. MCCADDEN, Academy of Natural Sciences, Phila., Pa.... 1906
MISS HARRIET E. MCCLELLAN, 4834 Walton Ave., Philadelphia, Pa. 1906
ALEXANDER MACELWEE, 5424 Merion Ave., Philadelphia, Pa..... 1892
DR. A. S. MARTIN, Norristown, Pa..... 1899
JOHN H. MATTHEWS, 3219 N. 13th St., Philadelphia, Pa..... 1902
DR. A. W. MILLER, 400 N. 3rd St., Philadelphia, Pa..... Founder.
PROF. MATTHEW C. O'BRIEN, Boy's High School, Philadelphia, Pa. 1904
WILLIAM NELSON, 2114 Morris St., Philadelphia, Pa..... 1909
JOHN E. OVERHOLTZER, Norristown, Pa..... 1892
JOHN T. PENNYPACKER, 837 Market St., Wilmington, Del..... 1892
W. A. POYSER, 6020 Thompson St., Philadelphia, Pa..... 1906
HAROLD W. PRETZ, 368 Union St., Allentown, Pa..... 1909
DR. W. H. REED, Norristown, Pa..... 1892
MISS LILLIAN ROSEMAN, 1839 Van Pelt St., Philadelphia, Pa..... 1900
SILAS L. SCHUMO, 880 N. 22nd St., Philadelphia, Pa..... 1897
DR. SAMUEL P. SEESE, Lansdale, Pa..... 1909
EDWIN I. SIMPSON, Academy of Natural Sciences, Philadelphia, Pa. 1907
BENJAMIN H. SMITH, 4704 Chester Ave., Philadelphia, Pa..... 1906
LEE SOWDEN, 3122 Midvale Ave., Philadelphia, Pa..... 1901
WITMER STONE, Academy of Natural Sciences, Phila., Pa..... Founder.
S. S. VAN PELT, 2110 Walnut St., Philadelphia, Pa..... 1902
ROBERT F. WELSH, 5335 Baynton St., Germantown, Pa..... 1909
T. J. WILKINSON, 4082 Lancaster Ave., Philadelphia, Pa..... 1907
CHARLES S. WILLIAMSON, 2127 Mt. Vernon St., Philadelphia, Pa... 1897
W. H. WITTE, 16 York St., Camden, N. J..... 1898
DR. FRANK WOODBURY, 218 N. 16th St., Philadelphia, Pa..... 1905

CORRESPONDING MEMBERS.

Charles C. Bachman, Slatington, Pa.	1908
Dr. George N. Best, Rosemont, N. J.	1906
Eugene P. Bicknell, New York City	1896
Dr. Nathaniel Lord Britton, New York Botanical Garden	1892
Elizabeth G. Britton, New York Botanical Garden	1895
O. H. Brown, Cape May, N. J.	1908
Joel J. Carter, Peter's Creek, Pa.	1904
A. Arthur Heller, Reno, Nev.	1893
George V. Nash, New York Botanical Garden	1905
Dr. J. T. Rothrock, West Chester, Pa.	1892
C. F. Saunders, Pasadena, Cal.	1893
Dr. John K. Small, New York Botanical Garden	1893
Mrs. E. S. Starr, Ocean View, N. J.	1897
Dr. Campbell E. Waters, Washington, D. C.	1904

DECEASED MEMBERS.

	Died.
Prof. Edson S. Bastin, Honorary	April, 1897
Dr. J. Bernard Brinton, Founder	December 6, 1894
Isaac Burk, Honorary	March 30, 1892
William M. Canby, Honorary	March 10, 1904
Dr. William Herbst, Honorary	December 22, 1906
Albrecht Jahn, Founder	February 6, 1905
Prof. John M. Maisch, Honorary	September 10, 1893
Isaac C. Martindale, Founder	January 3, 1893
Thomas Meehan, Founder	November 18, 1901
Dr. Isaac S. Moyer, Honorary	September 7, 1898
Dr. Thomas C. Porter, Honorary	April 27, 1901
Prof. Ferris W. Price, Corresponding	September 22, 1909
John H. Redfield, Honorary	February 27, 1895
Dr. Charles Schaeffer, Active	November 23, 1903
Louis Schneider, Active	August 14, 1901
Uselma C. Smith, Founder	April 2, 1902

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No. 3 1910

BARTONIA

A BOTANICAL ANNUAL

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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HELONIAS BULLATA, *LINNAEUS*

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 3. PHILADELPHIA, PA. 1910

Helonias bullata *Linnaeus*

BY STEWARDSON BROWN.

Few of our early spring flowers are more attractive or universally sought after by those who know it, than the "swamp pink," as it is not inappropriately called. Many of the more accessible localities of our region are sure of visits each year from enthusiasts, who feel amply repaid by a few heads of its fragrant flowers, even if the getting entail some scratches, with wet feet thrown in, for *Helonias* thrives best in a shaded swamp, often in a tangle of cat-briar and alder, where its roots may go deep into the soft muck.

There are many people, however, who are familiar with and appreciative of its beauties, and equally keen to get it each spring, but who never saw and probably have no desire to see *Helonias* growing in its natural surroundings, but prefer to do their hunting along the curbs on Market street, for it is almost certain to be found there among the variety of wild flowers brought from New Jersey by the colored people and sold along the streets each market day. Usually they bring the flowers only, for which ready sale is found, but it is no rare thing to see clumps of the roots offered also, a thing to be deplored in so

rare a plant; but who can blame the vender when purchasers may be found.

During a normal spring the end of April will find *Helonias* in its glory. When flowering begins, the small pink corollas, with their bright blue anthers on excerted stamens, are borne in a close raceme an inch long or less and tucked in among the young leaves, but as the flowering advances the raceme lengthens rapidly, as does the scape on which it is borne, so that when in the height of blooming the head of flowers will be two inches or more long, on a scape eighteen inches or more tall. It is at this period that the plant is at its best, the bright pink of the heads of flowers on their tall blue-green scapes contrasting with the brilliant greens of the young grasses and sedges of the swamp, with their own young leaves just unrolling, and the spreading tuft of strap-like leaves of the previous year which still persist.

The floral parts are persistent after the flowering period is done, the perianth segments enlarging as the raceme elongates in fruit, and still retaining their pink color, though suffused with green.

Even during winter *Helonias* is a striking plant in the swamps, for when the rank growth of grasses and sedges which during summer and autumn obscured all else are dead and brown it proclaims itself once more.

The leaves of the previous year still persistent are now flat on the ground or slightly raised above it, and though some show edges and tips of brown, the great majority are of a rich bright green with a liberal touch of autumn coloring. In the center of this cluster of leaves and elevated a little above them are to be seen the young ones of next year tightly rolled together in masses, and with them the flower heads, like large buttons, the whole making bright spots of green in the otherwise dead swamp. So the plant remains through the freeze and thaw of the winter months, awaiting the right time to start into vigorous growth, though occasionally misled by a premature hot spell to be caught later in a freeze; but this seldom happens, as the bog plants are less apt to be so affected than those of the drier ground, depending upon the warming of the water rather than the air.

It should be a matter of interest to the students of our flora, that the region around Philadelphia contains the type localities for so many plants. This could hardly be otherwise however, when we consider that from the time of the earliest settlement of our country, for more than a century, here was the center of nearly all scientific research. Keen interest was shown from the time of Kelpius and his little band of mystics when they established their garden for medicinal plants on the banks of the Wissahickon; but of all the men of these early days, John Bartram, through the establishing of his famous garden and the resulting correspondence with men of similar tastes in the old world, especially Peter Collinson, did more perhaps than any other in making our flora known, though much was done by James Logan, Dr. Christopher Witt, Humphry Marshall and others.

One of the early explorers to visit Pennsylvania and who aided materially in this way, was Peter Kalm, a Swedish naturalist, who arrived here in September, 1748, spending the major part of the year that followed at or near Philadelphia, collecting seeds and plants which he sent back to Sweden. These specimens, the plants at least, were submitted to Linnaeus, then recognized as the greatest authority, and upon them he based a number of his new genera of North American plants, including the subject of the present paper.

Helonias bullata was described in the first edition of *Species Plantarum*,[1] which appeared three years after Kalm's return to Sweden, his specimens having undoubtedly preceded him by some time. Referring to the plant's distribution Linnaeus says: "Habitat in Pensylvanicæ *paludosis*," in which he was certainly mistaken, having been misled no doubt as to the exact location of the place where collected, by the fact that Kalm was then staying at Philadelphia.

In the description of the genus to which reference is made under the species,[2] but which apparently did not receive general circulation until eleven years later, he says[3]: "Habitat in

[1] P. 342, 1753.

[2] Amoenitates Academicæ, Vol. III, p. 13, 1764.

[3] Gen. Nov., 1077.

Nova Svecia (New Jersey) *ad* Pensneck *locis paludosis, sphagno obsitis,*" a clear contradiction of the previous statement. Unquestionably the specimen here referred to was collected by Peter Kalm, who in his most entertaining journal,[1] records a visit on April 26, 1749, to Pennsneck, N. J., and while no allusion is made to specimens collected, there is every probability that he did gather such, as under normal seasonal conditions it would have been in perfection of flowering at that date, and it is quite unlikely that so striking a plant would have been overlooked by him.

The references to the occurrence of the species in Pennsylvania in subsequent publications, including the manuals of to-day, are without doubt based on this original statement in *Species Plantarum*, for so far as can be learned from specimens and otherwise, there appears to be no foundation for them in fact.

It is safe to say that at the present at least, *Helonias* does not grow in Pennsylvania in a wild state, if indeed it ever did within historic time, and may be safely eliminated as a part of its flora.

The range of the plant therefore, as we now know it, may be given briefly as: Southern New York and northern New Jersey to Virginia, and in the mountains of North Carolina; rare and local.

Its distribution is even more restricted than is indicated above, for it is only in the lower half of New Jersey, particularly in the Delaware River valley, that it is found with any frequency, and even there it is extremely local.

The species is known in New York state from a single locality, in a maple swamp near Rossville, Staten Island.[2] The northernmost station in the distribution of *Helonias* is in Morris Co., New Jersey, where it is found in two swamps on headwater streams of the Raritan River: at Budd's Lake and Succasunna. It is also found in a swamp on the same stream at South Amboy, and in a swamp on the Millstone Branch near Princeton Junction, Middlesex Co. In southern New Jersey where it grows in its greatest abundance, it is usually found in shady

[1] **Travels into North America, Vol. II, p. 155.**

[2] Britton, N. L., Bull. Torr. Bot. Club. Vol. IX, p. 101, 1882.

swamps along the streams or near their headwaters. In the coastal strip it is found in two swamps on Tom's River: at Collier's Mills and at Lakehurst (Manchester); on Cedar Creek at Bamber, and in a swamp at Barnegat.

Though *Helonias* is not, properly speaking, a Pine Barren plant, yet in a number of instances it grows in cold swamps in the pines; this is particularly true on the branches of the Mullica River, where it grows at Cedar Brook, Berlin, Atco and Jackson.

With the single exception of Cold Spring, Cape May Co., all the other records for the plant in New Jersey are on streams draining into the Delaware River, mostly in the headwater swamps, some of which are in the Pines.

The most northern of these tributary streams where *Helonias* is found is Crosswick's Creek, where it grows in a headwater swamp two miles east of New Egypt, Ocean Co., but not elsewhere so far as known. On one of the branches of Rancocos Creek it is found at Bear Swamp, in the Pine Barrens east of Medford. Cooper's Creek has *Helonias* growing on it in a wooded swamp near Haddonfield, but not elsewhere. There are, however, more records of the species on Timber Creek and its tributaries than on any other stream in the state, growing in wooded Pine Barren swamps at Sumner and Clementon, in several different localities, and again on the same branch at Laurel Springs, just outside of the Pine Barren area. At Lucaston it is found in a maple swamp on another branch of the same stream.

It is in the swamps near the mouth of Timber Creek, however, that it is probably found in its greatest abundance, at Gloucester, near Westville, Washington Park and Red Bank. Most of the other streams between the mouth of Timber Creek and Cape May have *Helonias* growing on them in greater or less abundance, in swamps usually near their headwaters. Included among these are Woodbury Creek at Woodbury, Mantua Creek at Wenonah, Nehonsey Brook near Clarksboro, Repaupo Creek near Mickleton, Alloway's Creek at Daretown, Morris River at Newfield, Glassboro and Millville, and on Dias Creek in a swamp two and a half miles west of Cape May Court House.

So far as known the species is of rare occurrence in the Delaware Peninsula. In New Castle Co. it is recorded from three stations only, all on Christiana Creek. The most westerly of these is in Purgatory Swamp near Crooch's Bridge, and the others are at Farnhurst and near Wilmington, possibly the same locality. It has also been observed in a swamp near Milford, Kent Co.

The extension of the range of the species into the mountains of North Carolina, recorded by Mr. Homer D. House,[1] is extremely interesting, suggesting a formerly wider distribution than that of to-day.

[1] Muhlenburgia, Vol. vi, p. 73.

Distribution of Meibomia and Lespedeza in Southeastern Pennsylvania

BY EDWIN B. BARTRAM.

Representatives of these two genera are quite characteristic of the autumnal flora of southeastern Pennsylvania, which may be arbitrarily defined for our purpose as covering the counties of Chester, Delaware, Philadelphia, Montgomery and Bucks.

The *Meibomias* are readily identified when the pods approach maturity, but unfortunately this is the time when they are noted principally with the idea of avoidance. Any one who has innocently served as a medium of distribution will probably concede this without much hesitation.

The *Lespedezas*, while closely allied to the above genus, present more difficult problems in identification. In addition some of the species give evidence of a tendency to hybridize. The natural result of this is a series of forms pressing into each other so closely that a satisfactory disposition of the plant in hand is not always possible without a careful study of its characters and relations.

Last fall the writer was impressed with the fact that the distribution of many of these species in the territory outlined was broader and more uniform than was generally supposed.

The section we have in mind is very inadequately represented in our local herbaria as far as these two genera are concerned. The available data has been supplemented by the writer's field notes, and is given in detail below. The flowering and fruiting periods have been approximated as closely as possible from specimens, supplemented by personal observation.

1. *Meibomia nudiflora* (L.) Kuntze.

Flowering Aug.; fruiting Sept. and Oct. Dry woods. Abundant and uniformly distributed.

2. *Meibomia grandiflora* (Walt.) Kuntze.

Flowering July; fruiting Aug. and Sept. Rich rocky hill-

sides, more often on limestone. Distribution uniform but not common.

3. *Meibomia Michauxii* Vail. Flowering Aug. 15th to Sept. 15th; fruiting Sept. and Oct. Dry copses and woods margins forming patches. Frequent and general.

4. *Meibomia canescens* (L.) Kuntze.

Flowering Aug.; fruiting Sept. Low moist ground. More frequent along water-courses, but generally distributed. Readily identified by the broad stipules and obtuse leaflets.

5. *Meibomia bracteosa* (Michx.) Kuntze.

Flowering late Aug.; fruiting Sept. Dry woods and thickets. Generally distributed, but rather uncommon. Very distinctive both in flower and fruit.

6. *Meibomia paniculata* (L.) Kuntze.

Flowering Aug. and early Sept.; fruiting Sept. and Oct. Roadsides and copses. Abundant throughout the area. Thrives in either moist or dry ground. Often too common along roadsides.

7. *Meibomia laevigata* (Nutt.) Kuntze.

Flowering late Aug.; fruiting Sept. Dry woods. Known from only two or three localities in Philadelphia and Montgomery counties.

8. *Meibomia viridiflora* (L.) Kuntze.

Flowering late Aug.; fruiting Sept. and Oct. Dry woods and copses. Frequent in upper Delaware Co. and eastern Chester Co., also along the Wissahickon Creek, Philadelphia Co., and from Lancaster Co. The thick leaflets, velvety beneath to the touch, characterize this species very readily.

9. *Meibomia Dillenii* (Darl.) Kuntze.

Flowering mid July to Sept. 15th; fruiting Sept. and Oct. Common in woods and along roadsides throughout. This is our commonest Tick Trefoil. It is characteristic of dusty roadsides in late summer, but finds nearly all habitats congenial.

10. *Meibomia Canadensis* (L.) Kuntze.

Flowering late June and July; fruiting July to Sept. Frequent in the large river valleys, but rare or absent in the intervening country. The earliest and most showy representative of the genus in our area.

11. *Meibomia rigida* (Ell.) Kuntze.

Flowering mid Aug. and Sept.; fruiting Sept. and Oct. Dry open copses and thickets. This species is poorly represented in local herbaria, but the writer observed it quite frequently last fall in Delaware and Chester counties. The distribution is probably more general and uniform than we supposed.

12. *Meibomia marylandica* (L.) Kuntze.

Flowering mid Aug. and Sept.; fruiting Sept. and Oct. Dry thickets and woods margins. Frequently associated with the previous species. Range and distribution about the same.

13. *Meibomia obtusa* (Muhl.) Vail.

Flowering Sept.; fruiting Sept. and Oct. Dry copses. No specimens from Pennsylvania. Dr. Porter reports this species from Bucks, Delaware and Chester counties.[1] The writer collected it in two localities in upper Delaware Co. last fall. Decidedly less abundant than the two previous species, except on the serpentine barrens of Chester Co., where it is reported frequent.[2]

1. *Lespedeza procumbens* Michx.

Flowering mid Aug. to Sept.; fruiting Sept. and Oct. Dry, open woods and banks. Not uncommon and very generally distributed.

2. *Lespedeza repens* (L.) Pers.

Flowering Aug. and Sept.; fruiting Sept. and Oct. Habitat and distribution substantially the same as last. These two species are quite characteristic of dry banks and woods margins in the hilly portions of this region.

3. *Lespedeza violacea* (L.) Pers.

Flowering Aug. ?; fruiting Sept. This species is unfamiliar to local botanists, and consequently but little is known with reference to its range and distribution. Some plants collected near Malvern, Chester Co., last fall (E. B. Bartram, No. 1187) were subsequently referred to this species by Mr. Bicknell with the qualification that they were uncharacteristic. A sheet in

[1] Flora of Penna., p. 188.

[2] Flora of Conowingo Barrens of S. E. Penna.—Proc. A. N. S., Phila., p. 566.

the herbarium of the Philadelphia Botanical Club from Ashley, Montgomery Co. (B. Long), also appears representative, but apart from these two we seem to have no material that is in any way suggestive or typical of the writer's conception of this species. Both of the above-mentioned localities are on limestone.

4. *Lespedeza Nuttallii* Darl.

Flowering late Aug. and Sept.; fruiting Sept. and Oct. Dry, generally rocky woods and copses. Frequent along the South Valley Hills, also on the Wissahickon and from Nockamixon Rocks. Apparently local in its distribution and more common in the neighborhood of the type locality than elsewhere.

A puzzling specimen collected near Bradford Hills, Chester Co., last fall (E. B. Bartram, No. 1265) was kindly examined by Mr. Bicknell and referred to as a probable hybrid of *L. hirta* and *L. Nuttallii*. This plant has characters suggestive of both species, and only a few pods have matured, some of the branches being totally infertile. It should be looked for elsewhere.

5. *Lespedeza Stuvei* Nutt.

One specimen from Lower Perkiomen Creek (J. Crawford). Not definitely known elsewhere in this region.

6. *Lespedeza virginiana* (L.) Britton.

Flowering mid Aug. to Sept.; fruiting Sept. and Oct. Dry, open hillsides. Well represented by herbarium specimens and generally distributed over the area where the conditions are suitable. The dry pods on this and the following species are persistent well into the winter.

7. *Lespedeza frutescens* (L.) Britton.

Flowering Aug. and Sept.; fruiting Sept. and Oct. Dry, open hillsides and copses. Abundant along the North and South Valley Hills and generally distributed elsewhere. This is the representative *Bush Clover* of the dry, hilly sections.

8. *Lespedeza hirta* (L.) Hornem.

Flowering Aug. and Sept.; fruiting Sept. and Oct. Dry hillsides and copses. Occasional throughout but not common. Locally abundant along the South Valley Hills.

9. *Lespedeza capitata* Michx.

Flowering mid Aug. to Sept.; fruiting Sept. and Oct. Dry fields and hillsides. Less frequent than the preceding. Represented by specimens from six localities.

10. *Lespedeza striata* (Thunb.) H. and A.

Fruiting Sept. and Oct. Represented by specimens from two localities, one of which, near Wayne, has been under observation for the past three years. There are no indications that this colony is spreading or that the plant is likely even to become as common in the Middle Atlantic States as it is now in the region to the south. Dr. Small's recent note[1] on the geographical distribution of this species indicates that these localities probably represent the extreme northern limit of the range as it is known at present.

[1] Torreya, Vol. x, p. 207.

Botanical Notes from Longport, New Jersey

BY CHARLES H. LA WALL.

Longport, N. J., is situated at the extreme southern end of the stretch of island beach, separated from the New Jersey mainland by a strip of thoroughfare, of which Atlantic City occupies the northern half.

The flora of this narrow strip of land is surprisingly large, as found by making continual observations throughout the vegetating year, which was done in this case by the author, who is not a botanist, but simply a nature-lover, who wishes to have others share in the knowledge which he has picked up at odd moments during a very busy summer. The following list was compiled from notes taken constantly during the spring and summer and early autumn, and the arrangement and nomenclature follows Britton & Brown's Illustrated Flora, which was used in classifying doubtful specimens, some of which are still doubtful, as will be noted.

There are several facts which impress themselves upon one who visits this portion of the coast constantly. One is the prevalence of certain plants which in their particular seasons appear to monopolize the landscape, or certain sections of it, to the exclusion of everything else. The bayberry, *Myrica caro-linensis*, is of course the most conspicuous plant seen as one passes along, either on the automobile or trolley road leading from Atlantic City to Longport. It fills in the hollows between the higher sand dunes and protects many delicate plants from the blighting effect of the salt mists. Without the bayberry bushes the landscape would be bare and desolate indeed, for it furnishes the greater part of the living green on this part of the island. Interspersed with the bayberry is the groundsel, *Baccharis halimifolia*, which in October attracts the attention of the observer by its abundant plumose fruiting-tops.

The evening primrose, *Onagra biennis*, fills in the interstices in many sections and spreads over the cleared spaces with a persistence worthy of emulation by some more attractive plants. The rosemallow, *Hibiscus moscheutos*, in midsummer, and the marsh samphire, *Salicornia herbacea*, in autumn, light up their respective portions of the island in a manner which must be seen to be appreciated. The range covered by the following observations is slightly greater than the Borough of Longport, extending to and including a stretch of woods which I shall call Cedar Park Woods, from the name of the nearest trolley station. This strip of woods runs from Ventnor to South Atlantic along the Thoroughfare side of the island, making the whole range occupy about one-half of the lower part of the island.

Ophioglossaceæ. *Ophioglossum arenarium*, adder's tongue; the same patch observed by Joseph Crawford in a small hollow between the dunes, within thirty yards of the beach, south of Twelfth Avenue, and recorded by him in BARTONIA for 1909, which patch is slightly increasing. This little hollow will be referred to as Crawford's Dell in future, as a number of interesting observations have been made in this spot, which is about ten feet wide and thirty feet long.

Polypodiaceæ. *Onoclea sensibilis*, sensitive fern. This was noticed in a number of dune-sheltered spots, including Crawford's Dell.

Pinaceæ.

Pinus rigida, pitch pine.

Juniperus virginiana, red cedar.

These two trees are found in abundance in the Cedar Park Woods and also in a woods lying between South Atlantic and Longport, on the thoroughfare side of the island, which I shall call Phillips' Woods, from the name of the owner.

Typhaceæ.

Typha latifolia, broad-leaved cat-tail.

Typha angustifolia, narrow-leaved cat-tail.

Both of these are found in marshy ground lying west of the trolley road at the upper end of South Atlantic, or Margate City as it is now called.

With the grasses and sedges I have had very little experience, but I have noted the following:

Cenchrus tribuloides, the sand bur. Everybody notices this, particularly in the latter part of the summer. It is found all over the island and spreads especially along the paths leading from the cottages to the beach, for some reason best known to itself—natural cussedness, I presume.

Spartina patens, salt meadow grass.

Bromus tectorum, downy brome grass.

Ammophila arenaria, sea mat weed.

Scirpus americana, chairmaker's rush.

Carex silicea, sea beach sedge.

Xyridaceæ.

Xyris flexuosa, slender yellow-eyed grass.

This is found almost everywhere, growing in with the salt meadow and other grasses.

Convallariaceæ.

Asparagus officinalis, asparagus.

Vagnera racemosa, false Solomon's seal.

Unifolium canadense, two-leaved Solomon's seal.

Polygonatum biflorum, Solomon's seal.

Smilaceæ.

Smilax rotundifolia, catbrier.

All of the foregoing have been observed both in Cedar Park Woods and Phillips' Woods.

Orchidaceæ.

Cypripedium acaule, stemless lady's slipper. A single plant was seen in Cedar Park Woods.

Gyrostachys simplex, little ladies' tresses.

Gyrostachys cernua, nodding ladies' tresses. Both of these are found in the grassy patch near the Borough Hall at 15th Avenue, and also in Crawford's Dell.

Leptorchis Loeslii, fen orchis. This remarkable find recorded by Crawford last year along with the *Ophioglossum*, is still spreading. Thirty individual plants were counted this season.

Myricaceæ.

Myrica carolinensis, bayberry. This is found everywhere.

Polygonaceæ.

Rumex acetosella, field or sheep sorrel.

Rumex hastatulus, Engleman's sorrel.

Rumex crispus, yellow dock.

Polygonum hydropiper, smartweed.

Polygonella articulata, coast jointweed.

The foregoing are distributed (with the exception of *R. hastatulus*, which is seen only below 16th Avenue), generally over the entire range, the coast jointweed being particularly noticeable at the lower end of the island, where in the fall it gives quite a pale rose tint to large areas between the bayberry bushes.

Chenopodiaceæ.

Chenopodium album, pigweed.

Chenopodium leptophyllum, narrow-leaved goosefoot.

Chenopodium ambrosioides, American wormseed.

Atriplex hastata, halberd-leaved crache.

Atriplex arenaria, sea beach atriplex.

Salicornia herbacea, marsh samphire.

Salicornia ambigua, woody glasswort.

Salsola kali, saltwort.

Salsola tragus, Russian thistle.

The foregoing are all found in abundance in that part of the island below the trolley terminus, with the exception of the *Salicornias*, which are found near Cedar Park Woods, and also between Margate City and Phillips' Woods.

Phytolaccaceæ.

Phytolacca decandra, pokeberry. Found all over, some of the plants attaining a tremendous size. The berries are much sought after by migrating birds in autumn.

Aizoaceæ.

Sesuvium maritimum, sea purslane.

Mollugo verticillata, carpetweed.

These are found in great abundance in the lower or southern end of the island.

Caryophyllaceæ.

Alsine media, common chickweed. Found in Cedar Park and Phillips' Woods.

Ammodenia peploides, sea beach sandwort. Found in large patches at lower end of the island in several spots on the exposed portion of the beach where it is even reached occasionally by the high tides.

Tissa marina, sea beach sand spurrey.

Tissa rubra, purple sandwort.

Paronychia dichotoma, forking whitlowwort.

Scleranthus annuus, knawel.

These are all found distributed generally over the lower part of the island.

Ranunculaceæ.

Aquilegia canadensis, wild columbine. A large patch of this occurs in the Cedar Park Woods.

Ranunculus bulbosus, bulbous buttercup. This was found on the lawn by the trolley station.

Lauraceæ.

Sassafras sassafras, sassafras. This is found in abundance all over the island, scattered in among the bayberry and groundsel bushes.

Cruciferæ.

Lepidium virginicum, peppergrass.

Cakile edentula, sea rocket.

Brassica nigra, black mustard.

Bursa bursa-pastoris, shepherd's purse.

All but the *Brassica* are found everywhere. One plant of that observed near the pumping station.

Rosaceæ.

Rubus canadensis, dewberry.

Fragaria vesca, strawberry.

Geum virginianum, rough avens.

All found in Phillips' Woods.

Rosa humilis, wild rose. This is found in great abundance near Phillips' Woods and in scattered clumps all over the island.

Prunus maritima, beach plum. Found in scattered clumps all over the island.

Prunus serotina, wild cherry. Found in Cedar Park and Phillips' Woods.

Caesalpinaceæ.

Cassia chaemacrista, partridge pea. Found on the edge of Cedar Park Woods.

Cassia nictitans, sensitive plant. Found everywhere.

Papilionaceæ.

Medicago sativa, alfalfa. Found on trolley station lawn.

Medicago lupulina, black medic. Found in Cedar Park Woods.

Trifolium arvense, rabbit-foot clover.

Trifolium pratense, red clover.

Strophostyles helvola, trailing wild bean.

Strophostyles umbellata, pink wild bean.

These are all found in all parts of the island.

Coronilla varia, coronilla. Found on Professor Remington's tract above 19th Avenue.

Geraniaceæ.

Geranium maculatum, wild geranium.

Geranium Robertianum, herb Robert.

Found in Phillips' Woods.

Oxalidaceæ.

Oxalis stricta, yellow wood-sorrel. Found everywhere.

Polygalaceæ.

Polygala verticillata, milkwort. Found in the grassy patch by Borough Hall, and also in Crawford's Dell.

Euphorbiaceæ.

Euphorbia polygonifolia, seaside spurge. Found everywhere.

Anacardiaceæ.

Rhus copallina, dwarf sumac. Abundant in Phillips' Woods.

Rhus radicans. Abundant everywhere, a pest.

Ilicaceæ.

Ilex opaca, American holly. In Cedar Park and Phillips' Woods.

Celastraceæ.

Celastrus scandens, bittersweet. Cedar Park and Phillips' Woods.

Vitaceæ.

Vitis labrusca, fox grape.

Vitis æstivalis, small grape. In Phillips' Woods.

Parthenocissus quinquefolia, Virginia creeper. Abundant everywhere, and is very striking in early autumn on account of its bright red foliage.

Malvaceæ.

Hibiscus moscheutos, rose mallow. Found between Cedar Park and Margate City in a swamp.

Hypericaceæ.

Hypericum mutilum, dwarf St. John's wort.

Triadenum virginicum, marsh St. John's wort. Both found with *Hibiscus.*

Sarothra gentianoides, pine weed. In upper end of Phillips' Woods.

Cistaceæ.

Helianthemum canadense, frostwort. Cedar Park Woods and Crawford's Dell.

Hudsonia tomentosa, beach heather. Large scattered patches at lower end of island.

Lechea maritima, beach pinweed. Abundant everywhere.

Violaceæ.

Viola primulaefolia, primrose-leaved violet. At edge of Cedar Park Woods.

Cactaceæ.

Opuntia opuntia, prickly pear. In Phillips' Woods.

Onagraceæ.

Onagra biennis, evening primrose. Abundant everywhere.

Kneiffia linearis, sundrops. Crawford's Dell.

Araliaceæ.

Aralia trifolia, dwarf ginseng. In Phillips' Woods.

Umbelliferæ.

Daucus carota, wild carrot. Everywhere.

Ptilimnium capillaceum, mock bishop weed. Found in swamp with *Hibiscus* and at upper end of Phillips' Woods.

Ericaceæ.

Gaultheria procumbens, wintergreen. Cedar Park Woods.

Primulaceæ.

Samolus floribundus, water pimpernel. Upper end of Phillips' Woods.

Trientalis americana, starflower. Cedar Park Woods.

Plumbaginaceæ.

Limonium carolinianum, sea lavender. In marshy ground near Phillips' Woods, and also near Cedar Park Woods.

Gentianaceæ.

Sabbatia stellaris, sea or marsh pink. Same localities as *Limonium*; also in Crawford's Dell and near Borough Hall.

Apocynaceæ.

Apocynum cannabinum, Indian hemp. Same localities as *Limonium*.

Asclepiadaceæ.

Asclepias tuberosa, butterfly weed. A single plant near beach below Margate City.

Asclepias pulchra, swamp milkweed. On edge of Cedar Park Woods.

Convolvulaceæ.

Convolvulus sepium, hedge bindweed. Abundant everywhere.

Labiatæ.

Teucrium canadense, American germander. Above Phillips' Woods and also near 12th Avenue.

Scutellaria integrifolia, hyssop-leaved scullcap. Cedar Park Woods.

Monarda punctata, horsemint. Abundant everywhere.

Lycopus americanus, cut-leaved water horehound. At upper end of Margate City.

Solanaceæ.

Solanum nigrum, black nightshade. Occasional plants everywhere.

Datura stramonium, jimson weed. On a waste heap below 18th Avenue.

Scrophulariaceæ.

Linaria canadensis, blue toadflax. Found everywhere.

Gerardia purpurea, large purple gerardia. On the meadow above Phillips' Woods; also in Crawford's Dell.

Gerardia maritima, seaside gerardia. Same localities as previous species of *Gerardia*.

Plantaginaceæ.

Plantago major, common plantain.

Plantago lanceolata, rib grass.

Plantago maritima, seaside plantain.

These are all over the range.

Plantago aristata, large-bracted plantain. In upper part of Margate city.

Rubiaceæ.

Mitchella repens, partridge berry. Cedar Park and Phillips' Woods.

Diodia teres, rough buttonweed. Scattered plants all over the range.

Galium verum, yellow bedstraw. On lawn at trolley station.

Galium circaezans, wild liquorice. Found in Cedar Park and Phillips' Woods.

Caprifolaceæ.

Sambucus canadensis, elder. Phillips' Woods.

Viburnum dentatum, arrowwood. Found in Cedar Park and Phillips' Woods.

Cichoriaceæ.

Adopogon virginicum, Virginia goatbeard.

Adopogon carolinianum, krigia.

Hypochaeris radicata, cat's ear.

Taraxacum taraxacum, dandelion.

All found on lawn at trolley station.

Lactuca canadensis, wild lettuce. Everywhere.

Hieracium scabrum, rough hawkweed. At upper end of Margate City.

Nabalus trifoliatus, tall rattlesnake root. Cedar Park Woods.

Ambrosiaceæ.

Ambrosia artemisiaefolia, Ragweed. Phillips' Woods.

Xanthium canadense, sea burdock. Everywhere.

Compositæ.

Lacinaria graminifolia-pilosa, button snakeroot. Very abundant in Cedar Park Woods.

Eupatorium hyssopifolium, justice weed. Cedar Park Woods.

Eupatorium rotundifolium, wild horehound. Same as previous species.

Solidago sempervirens, seaside goldenrod. Everywhere abundant.

Solidago odora and a number of other species on edge of Cedar Park Woods.

Baccharis halimifolia, groundsel. Abundant everywhere.

Pluchea camphorata, saltmarsh fleabane. On edge of Cedar Park Woods.

Gnaphalium obtusifolium, sweet balsam. Everywhere abundant.

Helianthus giganteus, wild sunflower. In swamp with *Hibiscus*.

Bidens bipinnata, Spanish needles. Phillips' Woods.

Helenium autumnale, sneezeweed. On edge of Cedar Park Woods.

Achillea millefolium, yarrow. Everywhere abundant.

Chrysanthemum leucanthemum, ox-eye daisy. On lawn at trolley station.

Artemisia Stelleriana, dusty miller. A patch near beach at lower end of island and one on 12th Avenue.

Carduus spinosissimus, yellow thistle. Near Cedar Park Woods.

The foregoing list, comprising some 160 species, is not complete, for it was impossible for the writer to visit each locality several times a month, as would be necessary to avoid overlooking some species. There are some deciduous trees also growing in both of the woods which have not been recorded because the writer expected to make a special trip for the purpose, but could not find the time this year.

Pressed specimens have been prepared of most of the plants, and a complete set will be presented to the Club Herbarium.

Certain Species Becoming well Established at Ashbourne and Elsewhere near Philadelphia

BY BAYARD LONG.

To any one giving attention to geographic distribution, very naturally it is only the native plants, and generally such of those as have not become weeds, that are primarily of interest. But he is continually meeting introduced species which force themselves upon his attention, especially if his field work be continued in the same territory for several years. Such are most likely of foreign origin, either weeds pure and simple or escapes from cultivation, which finding suitable habitats, in a few years establish themselves and become an element in the flora which cannot be overlooked.

An interesting feature of the latter is the greater ease with which certain species occupy our native habitats of woodland, meadow and field than those they have been given in cultivation. This is particularly true of the *Japanese knotweed* and *wineberry* in the vicinity of Ashbourne, near Philadelphia. Neither species is known to be in cultivation at all in the region where they are most extensively established.

One unfamiliar with the components of our native flora, botanizing along the Tacony Creek below the town, would be quite as unsuspicious from any evidence afforded by habitat or manner of growth that a fine, luxuriant *Rubus* with the stems densely covered with reddish gland-tipped bristles was an introduced plant as the novice often is about the little ground-ivy, *Glechoma hederacea*, so thoroughly do some foreign species make themselves at home and assume the appearance of indigenous plants.

The wineberry, *Rubus phoenicolasius*, is as thoroughly an element of the flora of the woods and thicket margins in this particular locality as the high-bush blackberry or the black-cap raspberry. Probably hundreds of plants of all sizes have been

observed here; a dozen or more particularly large colonies have been counted this season. One which has been noted for some time, since it was a single plant, measures at least twenty-five feet in its greatest diameter. Young plants are every year found springing up in new spots. The occurrence of colonies appearing along fence-rows and thickets, far removed from cultivation, seem to show that seeds are being naturally disseminated and the plant flourishing like any other *Rubus*. Flowers and fruit are abundantly produced.

From the comparatively recent inclusion of the species in our flora, and the few localities at which it has been reported as established, it may be not inappropriate to mention other local stations where the plant has been collected as an escape, but for want of actual field data it is not known just how thoroughly established. The plant was seen several years ago at Green Lane, on the Perkiomen Creek, distant from cultivation. Vigorous growth was shown but no extensive multiplication. It is reported by Mr. E. B. Bartram as abundant in an old field near Frazer, Chester Co. Collections have been made on Lehigh Mountain near Allentown, on Skippack Creek and at New Garden, Chester Co.

The Japanese knotweed, *Polygonum Zuccarinii*, is equally well established at Ashbourne in natural habitats of wood margins and wet meadows along stream borders, though less likely, because of its really exotic appearance to be mistaken for an indigenous plant. The largest station is probably to be traced to an old garden bordering a streamlet on the outskirts of the town, although there is little actual evidence of its escape. Another colony down the streamlet forms a dense thicket at least 25 feet long of luxuriant stems 8 to 10 feet tall. Other colonies of almost equal dimensions are frequent, and new colonies appear each year. In August the Japanese knotweed is quite a conspicuous and handsome plant with abundant clusters of white flowers; fruit is plentifully found. Other colonies of same extent have been observed near Fox Chase, on Verree Road, and on the roadsides beyond Jenkintown.

Mr. Charles S. Williamson reports seeing the plant some years ago near Penn Valley, Bucks Co., far removed from gardens,

but apparently not spreading to any extent. He also reports a station of some size along Darby Road west of Darby Creek.

In Lansdowne Glen, Fairmount Park, where the species was planted years ago, it is thoroughly established and spreading extensively.

There is a large colony in the woodlands immediately adjoining the University of Pennsylvania Botanical Garden. A school garden has now been laid out in the midst of the station and much of the plant destroyed, but there are still large colonies flourishing along the woods and thickets near by. In an old marbleyard on Woodland Avenue the species is extremely abundant, vying with the matrimony vine, *Lycium vulgare*, in occupying all available space. A specimen in the Club Herbarium collected by Dr. Leidy in September, 1887, bearing the following on its label, "On old lot of Kilvington's Garden, 3641 Woodland Avenue, plenty," was probably collected at this station. I am not aware to what extent the plant has become established at other localities[1] in America, but in the vicinity of Philadelphia at least it has most certainly taken a strong foothold.

A third plant, like the previous two of Japanese origin, which is becoming a noticeable escape at Ashbourne is Eulalia, *Miscanthus sinensis*, sometimes referred to as Japanese pampas grass. This handsome grass of cultivation is apparently just beginning to escape to any extent. It has not yet found a place in our current manuals, but has been included in the North American Flora[2] as "escaped from cultivation in Florida and at Washington, D. C." Ashbourne and Hillside are both making fair bids to be considered additional localities where the species is well escaped. At both of these places the plant is thriving in open, dry grass lands long since out of cultivation. As neither locality, to the best of my knowledge, is in close proximity to places where the plant is cultivated, nor where the roots might have been thrown in the clearing of ornamental beds, the natural supposition is that it is here grown from seed disseminated by

[1] Britton's Manual, Ed. iii, p. 336, 1907.

[2] N. A. Flora, Vol. xvii, pt. i, p. 89.

the wind, but however this may be, it has appeared in an apparently natural manner in the two localities, and is flourishing in numerous luxuriant clumps.

The plant has also been collected as an escape along the roadside at Paoli, Chester Co., by Mr. Williamson, and is recorded by Mr. E. B. Bartram at five stations, mostly dry, open hillsides on the mica-slate, within a radius of three miles of Wayne, Chester Co. These are at Gulf Mills, where twenty to thirty clumps occur; at Villanova, Radnor, Wayne and Devon, the occurrence in each instance apparently due to the natural dissemination of the seed by wind.

General Notes

The present number has been delayed by the unexpected absence of the editor in Venezuela from December 26, 1910, to April 18, 1911.—Ed.

With this number we present a plate of *Helonias bullata* Linn., the accompanying text giving our present knowledge of the distribution of the species, especially in our own region. A similar treatment of a number of the plants having their type localities in the vicinity of Philadelphia will be made a feature of future issues.—Ed.

Additions to the Herbarium.—During the year closed with December, 1910, 4,080 sheets were added to the Club Herbarium, having been received from twenty-seven contributors. Included among the larger accessions are the Detwiller Herbarium, from the vicinity of Hellertown, Bucks Co., Pa., and duplicates from the C. A. Gross Herbarium of Southern New Jersey plants.—S. S. Van Pelt.

Corema Conradii in Ocean Co., N. J., East of the Plains.—On May 7, 1911, I came upon quite a colony of *Corema Conradii* at a spot known locally as Eagleswood, on the south side of West Creek, about three miles west of the town of that name in Ocean Co., N. J. The location was on an elevated sandy bluff overlooking the bogs which border the stream. It was evidently wind-swept, and the vegetation rather low. The usual associates of *Corema*—*Arctostaphylos*, *Hudsonia ericoides* and *Dendrium*—were all present. This locality is well to the east of the Plains, and is probably nearer to the coast than any previous New Jersey records.—Witmer Stone.

Galium hispidulum *Michx.* in Cape May Co., N. J.—Early in December, 1909, I collected some specimens of a *Galium* with

large blue-black fruit, in a sandy woods back of the sand dunes at Higbee's Beach on the bay shore. I took them to be *G. hispidulum* Michx., which had been recorded from below this locality many years ago but not collected since. I accidentally lost the specimens, but during the autumn of 1910 more were secured and submitted to members of the Club, who pronounced them undoubtedly *Galium hispidulum.* Late in November, 1910, Mr. Bayard Long and myself found it quite abundant at Price's Beach and Town Bank, about a mile above the former locality, and I have found it in a few other places in the woods back of the sandhills along the bay shore. The plant being nearly evergreen, and holding its fruit very late in the season, is quite conspicuous during the late fall and early winter after other vegetation is killed by frost.—O. H. Brown.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1910

January 27, 1910. Sixteen members and one visitor present. Mr. Van Pelt spoke of the plants collected during several trips to Lehigh Co., Pa., during the past season, when the following species of interest were collected: Near Allentown, *Saxifraga micranthidifolia* (Haw.) B. S. P., on rocky mountain streams, *Rudbeckia fulgida* Ait., *Solidago rigida* L. and *Heliopsis scabra* Dunal; near Lehigh Gap, *Trillium undulatum* Willd., *Scleria verticillata* Muhl., *Scirpus atrocinctus* Fernald and *Carex setifolia* (Dewey) Britton. Other plants noted in the region were *Asplenium monatnum* Willd., *A. ebenoides* R. R. Scott, *A. ruta-muraria* L., *Mimulus moschatus* Dougl., *Hibiscus moscheutos* L. and *Cardamine rotundifolia* Michx.

Mr. Long spoke of *Amelanchier* in our region, recognizing four species which are readily separable into two groups, the first including *A. canadensis* (L.), which has the base of the leaves usually cordate, and is a small tree or tall shrub, frequent in dry woods in Pennsylvania, and *A. intermedia* Spach, with leaf bases usually narrowed, a shrub common in moist situations, particularly in New Jersey. The second group includes *A. sanguinea* (Pursh), a small tree or tall shrub known locally only from near Easton, Pa., on the Delaware River, and *A. erecta* Blanchard, a low shrub growing in colonies and known only from a few stations near the Delaware and Susquehanna Rivers.

Albert C. Gruber, 716 Haw Avenue, Norristown, Pa., was elected to membership.

February 27, 1910. Twelve members present. Mr. Stone discussed local species of *Panicum*, illustrating his remarks by a number of specimens displayed on the wall. A general résumé of the genus was given, with particular reference to our local species. The work of Hitchcock and Chase on the genus was

referred to, much local material being furnished them by our Club, by means of which five species were added to their list from New Jersey, namely: *Panicum aciculare* Desv., *P. caerulescens* Hask. and *P. Wrightianum* Scribn. credited to Mr. Stone, while *P. scabriusculum* Ell. and *P. cryptanthum* Ashe were credited to Mr. Long.

Mr. Long spoke of several species of plants in the range which have been wrongly referred: *Galium erectum* Huds., which has been passing as *G. Mollugo* L.; an ash restricted with us to southeastern New Jersey, probably *Fraxinus Michauxii* (Britton), which is quite distinct from *F. pennsylvanica* Marsh., with which it has been confused; and *Linum floridanum* (Planch.) Trel., which has been passing mostly as *L. medium* (Planch.) Britton, specimens of this species from numerous stations in Delaware, Pennsylvania and New Jersey being shown.

March 24, 1910. Fourteen members and one visitor present. Mr. Henry A. Lang recounted an interesting trip made by him during the summer of 1909 in the vicinity of Jacksonville, Florida, illustrating his talk with specimens shown on the wall.

April 28, 1910. Present seventeen members and two visitors. Francis W. Pennell, Wawa, Pa., was elected to membership.

Mr. Van Pelt spoke of some interesting plants from southeastern New Jersey, mostly Cape May county, illustrated by unusually fine specimens on the wall. Among the many noted some of the more striking were *Pogonia divaricata* (L.) R. Br., *Carex Harperi* Fernald, *Asclepias lanceolata* Walt., *Solidago Elliottii* T. & G. and *Clitoria mariana* L. At Cape May Court House *Helonias bullata* L. was noted, an unusual species for Cape May county. Other interesting species shown were *Eleocharis tortilis* (Link) Schultze, *Itea virginica* L., *Quercus heterophylla* Michx. and *Q. Rudkini* Britton. *Asclepias verticillata* L., an unusual plant for southern New Jersey, was also shown.

Mr. Long spoke of recent studies he had made of the *Scirpus* material of the *debilis* group in the herbarium. The characters separating *S. debilis* Pursh. from *S. Smithii* A. Gray are to be found in the achenes rather than in the perianth, as there are forms of *S. Smithii* A. Gray with bristles and of *S. debilis* Pursh

without. The form of *S. Smithii* A. Gray with bristles was determined to be *var. setosus* Fernald, confirmation of which was received from Prof. Fernald. Examination of our material showed that typical *S. Smithii* A. Gray was found only within tidewater limit on the shores of the Delaware River, while the variety was from further inland.

May 26, 1910. Fifteen members present. The following minute was adopted: "The Philadelphia Botanical Club has learned with deep regret of the death on May 18, 1910, of Elias W. Urey, and desires to place on record its appreciation of Mr. Urey's hospitality to the Club and its members on the many botanical excursions to York Furnace, and his untiring efforts in behalf of the first botanical Symposium at McCall's Ferry in 1904."

Mr. Bartram described a trip taken in the latter part of May, 1909, to Natural Bridge, Virginia, illustrating with specimens on the wall. A find of especial interest was *Antennaria canadensis* Greene, extending its southern range more than four hundred miles.

Mr. Williamson spoke of some collections made by him at the Great Falls of the Potomac, showing specimens of same.

Mr. Long stated that the following three plants listed as occurring in New Jersey did not seem to be found there at present, namely: *Helianthemum corymbosum* Michx., *Aster surculosus* Michx. and *Juncus Roemerianus* Scheele.

September 22, 1910. Fifteen members present. Louis C. Klopp, 1301 Snyder Avenue, Philadelphia, was elected to membership.

The results of the Farmingdale Symposium, July 2–9, 1910, were discussed by several of the participants.

Mr. Long spoke particularly of a preliminary trip to this locality made in company with Mr. Brown, May 28–30, 1910. The predominant flora of the region is of the West Jersey type, with a certain Pine Barren element in spots. Among the collections made were *Antennaria Parlinii* Fernald, *Viola Brittoniana* Pollard and *Lonicera sempervirens* L. *Arisaema pusillum* (Peck) Nash was found in typical form, and *Adiantum pedatum* L.,

Pedicularis canadensis L. and *Pyrola secunda* L., three species rare in southern New Jersey, were also collected. *Uvalaria nitida* (Britton) Mackenzie, another interesting species, was collected at two localities on the right of way of the railroad between Farmingdale and Allaire. This is probably the most northerly station from which the plant has been recorded.

Mr. Brown, speaking more particularly of the period covered by the Symposium, added the following species of interest for the region: *Hamamelis virginiana* L., *Heuchera americana* L., *Arabis laevigata* (Muhl.) Poir., *Menispermum canadense* L. and *Chrysosplenium americana* Schwein., all along the upper waters of Manasquan River. *Lycopodium tristachyum* Pursh was collected along the Central Railroad of New Jersey north of Shark River station, so far as known being the first record of the species for this region.

Mr. Van Pelt referred to the extreme scarcity of flowers on *Utricularia intermedia* Hayne, at Point Pleasant, N. J., only four being seen, though the plant occurred in considerable abundance.

October 27, 1910. Eleven members present. Mr. Williamson spoke of a trip to Culver's Gap, N. J., on May 30, 1910, when the following plants of interest were collected: *Salix myrtilloides* L., *Viburnum Opulus* L. and *Equisetum sylvaticus* L. A rather unusual combination observed was *Sarracenia purpurea* L. and *Cypripedium acaule* Ait., the orchid in the drier spots.

November 25, 1910. Ten members present. Mr. Bartram spoke of some of his finds on a trip to Virginia, including Natural Bridge, Norfolk and Suffolk. His talk was illustrated with specimens on the wall.

Mr. Long spoke of the occurrence of *Galium hispidulum* Michx. and *Andropogon Elliottii* Chapm. in Cape May county, N. J.

December 22, 1910. Annual meeting, fourteen members present. Election of officers for the ensuing year resulted in the choice of President, Stewardson Brown; Vice-President, Edwin B. Bartram; Second Vice-President, Joel J. Carter; Secretary, Lee Sowden; Treasurer, Arthur N. Leeds; Curator, Samuel S. Van Pelt; Associate Curator, Bayard Long.

Some of the interesting specimens added to the herbarium during the year were shown on the wall, including the following new to the Club collection: *Alsine aquatica* (L.) Britton, from Buck Run, Newlin Twp., Chester Co., Pa.; *Eruca sativa* Mill., in a grass field at Pleasant Grove, Lancaster Co., Pa.; *Galium Wirtgenii* F. Schultz, in a pasture near Wakefield, Lancaster Co., Pa.; *Galium hispidulum* Michx., Higbee's Beech, Cape May Co., N. J.; *Tilia heterophylla* Vent., Lehigh Gap and along Hoffman's Creek, Slatington, Pa.; *Anagallis arvensis coerulea* (Lam.) Ledeb., field near Shimersville, Lehigh Co., Pa.; *Cypripedium hirsutum* Mill., Johnsonville, Northampton Co., Pa.; *Antennaria occidentalis* Greene, Bangor and Mt. Bethel, Northampton Co., Pa.; *Savastana Nashii* Bicknell, marsh at Como, N. J., and *Carex aestivaliformis* Mackenzie, Wissahickon ravine above Thorp's Lane, Philadelphia Co., Pa., where it was collected for several successive seasons by Mr. Van Pelt before the species was named by Mr. Mackenzie. Following the usual custom the evening was given over to an examination of the specimens and social intercourse.

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OF THE

Philadelphia Botanical Club.

1911.

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No. 4 1911

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EDITED BY

STEWARDSON BROWN

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ABAMA AMERICANA (*KER.*) *MORONG*

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. IV PHILADELPHIA, PA. 1911

Abama americana (*Ker*) *Morong*

BY WITMER STONE

In 1802 there came to Philadelphia a young botanist of German parentage, named Frederick Pursh. He was traveling in America in search of specimens and information from which he could prepare a flora of the country—an undertaking which he ultimately achieved with much credit.

He naturally visited the famous Bartram homestead and the country-seat of William Hamilton not far distant, noted for their botanic gardens, and both at that time well out in the country, although now surrounded by the city—the former a park, the latter a cemetery. At Hamilton's place, known as The Woodlands, Pursh found the manager of the gardens about to leave, and being offered the position he accepted it, and remained in charge until 1805. His immediate surroundings were particularly congenial, especially his association with William Bartram, Benjamin Smith Barton and others, while the proximity of the great Pine Barren wilderness of New Jersey offered opportunities for profitable collecting. The region had hitherto been comparatively little explored, and Pursh visited

it frequently and to good purpose, although unfortunately he has left us no account of the country as he found it or any details relating to his discoveries.

Among the rare and curious plants that he was the first to collect was one which he procured near the old hostelry at Quaker Bridge, where travelers crossing to the coast could find lodging over night, and where, until the advent of the railroads, botanists were wont to make their headquarters when exploring the Pine Barrens.

This plant was submitted to Mr. Ker, who published a figure and description of it in Curtis' Botanical Magazine, plate No. 1505, as *Narthecium americanum*. Pursh thought that his plant was identical with the *Narthecium glutinosum* of Michaux, a species of *Tofieldia*, and informed Ker that he had collected it in Canada as well as in New Jersey. Later he adopted Ker's view of its relationship, but for some years later, even in the earlier editions of Wood's Botany, Canada is erroneously included in the range of this species.

It is not surprising that in the involved condition of the nomenclature of these genera prevalent at the time, there should have been some doubt as to the exact relationship of this plant, but it is curious that in the bogs of the Wading River not far from Quaker Bridge there was growing a true *Tofieldia*, which, had Pursh only discovered it, would have shown him at once the difference between the two genera.

Until nearly the close of the nineteenth century our plant was known as *Narthecium americanum*, or as a variety of the closely allied *N. ossifragum* of the bogs of northern Europe, but latterly with the strict enforcement of priority the earlier generic name *Abama* of Adanson has been revived, and it appears as *Abama americana*. The plant really has no vernacular name. Few of the natives of the Pines ever saw it, and it has no conspicuous characters or uses which would demand recognition by name. In the books it has been called "Bog Asphodel" and "False Asphodel." As to systematic relationship, it has been shifted back and forth from *Juncaceae* to *Melanthaceae*, now finding lodgment in the latter group.

In distribution the *Abama* is extremely local. When Dr.

Britton published his catalogue of New Jersey plants, seventy-five years after the discovery of the *Abama*, it had been found at only five stations, and now, after a lapse of just one hundred years, we know it from only fifteen localities, all of them—with one exception—in an area, roughly speaking, twenty by thirty miles, from Tom's River to Crowleytown, and from Ostrom to Pasadena.

It had always been supposed to be restricted absolutely to the heart of the New Jersey Pine Barrens, but in examining the Albert Commons herbarium now in the Academy of Natural Sciences of Philadelphia, Mr. Stewardson Brown found specimens collected near Lewes, Delaware, by Mr. Commons, August 1, 1895.

Probably some of the older localities are now extinct, as the *Abama* is one of those plants which are exterminated by cranberry culture. The damming and flooding of the bogs cover the low, wet sandy spots frequented by the plant and it disappears—at least I have never been able to find it on the edges of cultivated bogs. On the branches of the Wading River about Chatsworth and Speedwell, where broad, wet sandy bogs abound, I have seen great patches of *Abama*, the short stiff leaves curving up from the root stalks in thick ranks like short grass, while the yellow spikes standing close together make a golden sheen over the bog that can be seen at quite a distance. Even when in fruit they make quite a show, the seed capsules being rich reddish-brown, and the stalks and bracts buff like wheat chaff.

Abama always brings to my mind recollections of some of the wildest stretches of the Pine Barrens. One spot especially I always associate with it and its congeners *Lophiola* and *Tofieldia*.

A low, scattered growth of Pitch Pines slopes down on either side to the moist Savanna, through which flows the rapid, tea-colored stream. On the edge of the moist ground is a dense low, shrubby growth of White Azalea, three or four species of Huckleberries and the Inkberry—*Ilex glabra*. White Cedars mark the course of the stream, now forming dense clusters, now scattering, with young ones standing out here and there in the grassy, open stretches, and with the Cedars along the bank are Red Maples, Wax Myrtles and beds of Royal Fern, *Carex livida* and *Eleocharis tuberculosa*.

The Savannas are covered with the tall stalks of *Danthonia epilis*, while the denser growth below contains *Panicum ensifolium*, *Rynchosporae* of several species, *Scleria minor*, etc., all rising from a bed of sphagnum or from patches of wet, white sand, and scattered all about in definite clumps are the Pitcher Plants, with pitchers of all shades and combinations of green and crimson, and the button-topped stalks of the Pipeworts, *Eriocaulon compressum* and *decangulare*—the former at this date, July 4, scattering its chaff at the slightest touch, the latter only in bud. With them, but not so definitely tufted, are the yellow spikes of the *Abama*, the white gummy-stemmed *Tofieldia*, and beds of the snowy, wooly heads of the *Lophiola*. There are crimson Limodorums and pink Pogonias starring the grass here and there, and where shallow, rusty, iron-stained pools are formed on either side of the rapid-flowing stream, there are solid masses of yellow *Utricularias*, shining like beds of gold in the sunlight. And in the deep water are white pond-lilies and velvety leaves of the Golden Club, now gone to seed, erect emerged spikes of *Juncus militaris* and *Xyris Congdoni*, and great beds of *Eriocaulon septangulare* and *Scirpus subterminalis*, their leaves and stems ever swaying in the steady current. Truly one of nature's flower gardens, and it stretches for miles, following the course of the stream through the wilderness of pine, cedar and white sand, now narrowing, now widening out into broad stretches. Some seasons it is saturated with water and one can only browse along the edges, at others the dried vegetation forms a crust upon which one can walk with ease, though ever mindful that beneath is an almost bottomless morass of mud and decayed vegetation, so that it is safer in such spots to trust to fallen cedar logs and dense clumps of rushes in shaping one's course.*

Such are the haunts of *Abama*, but their beauties are more than offset in the eyes of all but enthusiastic botanists, by the hordes of blood-thirsty mosquitoes, swarms of persistent deer flies, the apparently endless roads of deep white sand, and the broiling sun of midsummer.

* From Stone, Flora of Southern N. J. Ann. Rept. N. J. State Museum (in press).

Abama americana is known from Toms River, from Forked River, ten miles below, and from Ostrom on Oyster Creek, a little farther south, from Chatsworth, Speedwell, Jones Mill and Pole Branch on the Wading River, and from Hampton Gate, east of Atsion, Quaker Bridge, Batsto, Pleasant Mills, and opposite Crowleytown on the Batsto and Mullica River system, and from Goose Pond west of Pasadena, the headwaters of one of the branches of Rancocas Creek—the only station on a stream draining into the Delaware.

All of the localities lie east of the New Jersey Southern Railroad except Pasadena and Hampton Gate, which are a little to the west of it; while all of them are north of the Camden and Atlantic road.

The record given in Dr. Britton's Catalogue for Woodbury on authority of Mrs. W. McGeorge I have been unable to verify. No specimen is extant in any herbarium so far as I can ascertain, and Dr. Britton has no recollection of ever having seen a specimen from this locality. Its occurrence at Woodbury would be very surprising, and under the circumstances it seems probable that some error has been made in connection with the record.

The well-defined, limited area in which *Abama* occurs in New Jersey makes Mr. Commons' discovery of the plant at Lewes, Delaware, all the more interesting. As in the case of a good many other species, we probably have the remnant of a much wider distribution in former geological time, probably connecting on the north with *A. ossifraga* of Europe, of which our plant is quite likely a derivative, differentiated by isolation and peculiar conditions of environment.

Some Noteworthy Plants of Lehigh County, Pa.

BY HAROLD W. PRETZ

The manner in which the ranges of species are expressed in our manuals of botany is generally well known to workers in the science, and an increasing knowledge of the factors limiting the range of certain species is contributing to a better understanding of their distribution. Species of typical Carolinian association are thus found to extend westward well toward the mountains in this latitude in isolated stations. When they occur further west it is usually just across the mountains. Thus the "northern" or northwestern tier of the counties of the Club range in Pennsylvania mark the extension toward or away from the mountains as the case may be, of certain species. Lehigh county shares several of these outposts with the other counties and in some cases apparently holds the only records of this kind for the Club territory.

Apart from such records there are certain species occurring within Lehigh county that are worthy of special mention for the purpose of recording their present status. Plain records often do not tell anything more than the fact of occurrence, and properly labeled material usually tells little more. To the interested student of some special species this is often discouraging. The present contribution has really grown from such an especial interest.

In *Sargent's Manual of the Trees*, Lehigh county is specifically mentioned as a limit of distribution for the Shingle Oak (*Quercus imbricaria* Michx.) in a northeasterly direction. When the "New Gray" was published there was a record for this species that read, "locally, e. Mass. (Kennedy)." Here apparently was a record that had to be reckoned with, and Dr. Fernald of the Gray Herbarium very kindly gave the writer all of the information at his command concerning this record. In his letter Dr. Fernald writes, "For several years local botanists have

known a tree which was found by Dr. G. G. Kennedy growing in a dense tangle by a stone wall in Milton, Mass. The tree is estimated as 40 or 50 years old and is the only one known. Dr. Kennedy has an interesting theory in regard to its origin and promised to make a note of his explanation in Rhodora." Dr. Fernald also stated "that Dr. Kennedy had never himself published the information about it." Under the circumstances it seemed quite proper to publish in BARTONIA something of the occurrence of the species in Lehigh county.

The species in Lehigh county may be said to be confined to the valley of Cedar Creek and its environs. For three or four miles along the valley of the creek the trees are found to occur in the patches of woodland between the cultivated fields, along the hedge-rows, etc. As far as Dorneyville, three-fourths of a mile south from the creek, small trees may be seen along the road-side. In the vicinity of Col. H. C. Trexler's farm in the valley of Little Cedar Creek the tree is of rather frequent occurrence, and in some cases is found to extend approximately one-half mile northeast from the creek. No census of trees has ever been attempted because of the relative frequency of occurrence throughout this local area. The largest trees occur mostly scattered along the lowlands in the vicinity of the stream. At a spring head above the dam at Dorney Park is a large tree; one and a half miles down stream in a field is another. Just above the Duck Farm there are several roughly scattered in a group, and one-half a mile below are at least two large trees. As stated above, the writer has never followed out his intention of securing accurate data concerning the species in the county. At least some of the trees specifically mentioned above are 50 feet or over in height. There are a number of others that do not approach this height but are mature trees. In one very small patch of woodland between fields, the writer recalls seeing three saplings of less than eight feet in height and a girth easily surrounded by the fingers of one hand. In size the trees vary in about the same degree as do other indigenous species.

The writer has always believed the species indigenous. The earliest white settlers in the county did not come from the West, and the species is really of more normal distribution west

of the Appalachians and southward. Porter's Flora of Pennsylvania gives a number of stations for the State, the nearest being Huntingdon county. There is a record in the Handbook of the Flora of Philadelphia and vicinity for Haddington, Philadelphia county. This record is based on a single tree and the writer has been assured that this tree bears every evidence of having been introduced into cultivation. Dr. Moyer in a paper read before the Bucks County Historical Society at Quakertown, April 15, 1884, entitled *Indigenous and Naturalized Flowering Plants, Ferns, and Fern Allies of Bucks County*, said, "We have fourteen species of oaks; two, the Shingle Oak and the Spanish Oak, are so rare as to be botanical curiosities; * * * ." A revision of Dr. Moyer's list of plants for Bucks county by Dr. C. D. Fretz, does not include Shingle Oak, but in the original list in the History of Bucks County published in Doylestown, Pa., 1876, *Quercus Phellos* Mx., collected by I. C. Martindale at Bristol, is called Shingle Oak.

The occurrence in the county of other species normally Western in their distribution would go far to confirm the opinion that the tree is indigenous. On a limestone knoll near West Bethlehem, along the Monocacy creek, *Gentiana flavida* A. Gray has been collected, and a good specimen is in the Porter herbarium at Lafayette College. In 1899 Mr. Wilbur L. King, of Bethlehem, collected the plant at this place, and in 1900 he and Mr. J. A. Ruth, of West Bethlehem, and formerly of Monroe, Bucks county, visited the place but failed to find a trace of of the plant. Mr. Ruth and his brother found the one plant of this species on which the record for Bucks county is based. It was found close to the jasper pits of the Indians, and the question of its introduction through the agency of the red man was suggested by Mr. J. A. Ruth in a local historical paper. The writer does not feel that such a suggestion would apply to the Lehigh county plants. Recently the writer went over the spot, and while the Gentian was apparently absent, *Eupatorium altissimum* L., also collected by Dr. Porter presumably at this same place, was rather abundant. Both of these plants are rather normally Western in their distribution. Associated with the Eupatorium was *Solidago rigida* L. and *Kuhnia eupatorioides* L.,

the latter also a plant recorded for "Lehigh" in Porter's list and presumably from this place, though the plant can still be found at another station in the county.

The occurrence of from one to two dozen large trees of the Bur Oak (*Quercus macrocarpa* Michx.) locally in woodlands, along fences, etc., along the Coplay creek just west of Hokendauqua, is perhaps of sufficient interest to mention in this connection. This species has a wider Eastern range than any of the above-mentioned species, but the trees though localized would appear to the writer to be indigenous.

Another noteworthy plant of Lehigh county is *Saxifraga micranthidifolia* (Haw.) B. S. P., a plant of the Alleghenies ranging from Lehigh and Northampton counties southward to Tennessee. As far as the writer knows the record in Dr. Porter's list for Laurel Hill, Somerset county, is the only other one for the State of Pennsylvania. Just where the "Bethlehem, Northampton county" station may be, the writer has never tried to confirm. Doubtless it is along one of the smaller streams of the South Mountain along the Lehigh river just below Bethlehem. On the spur of these mountains that parallels the river to just below Allentown in Lehigh county, the plant occurs in abundance well up the hill along a small stream rising in a boggy area locally known as the "Bletzel," about one and three-fourth miles from Allentown. About two miles southeast of Allentown is the main range of the South Mountains locally known as Lehigh Mountain. Along the north side of this ridge from a streamlet in the vicinity of a place known locally as "Gruvers," to a streamlet about one and a half miles eastward from Emaus, the species occurs rather abundantly, along at least portions of the small streamlets or in the vicinity of the boggy areas in which they head. The writer would simply direct any one in search of the species in Lehigh county to find a streamlet and follow it up. The species would surely be found somewhere perched among the rocks or growing among them in the widened bed of the cold streamlet. En masse the plant in bloom is rather a fair sight.

It is not the purpose of the writer to follow up in any way the many suggestive points concerning the distribution of the

above-mentioned species and their occurrence in the county, but rather merely to indicate their present status. In reply to an inquiry, Dr. A. F. K. Krout, a former resident of the county and a collector in this region, has written of *Quercus imbricaria* Michx. and *Saxifraga micanthidifolia* (Haw) B. S. P.:

"These plants have a very interesting history in your county. The first to discover either of them were the Moravian botanists, whose industry in this line allowed nothing to escape their notice in this rich field for botanical exploration.

"The *Quercus imbricaria* was first found by Rev. Christian Denke, of Nazareth, Pa., a friend and contemporary of the noted Dr. Heinrich Muhlenberg, of Lancaster, and one of his correspondents. And then Rev. Schweinitz and Rev. Wolle and their successor, Eugene A. Rau, who informed all the rest of us newcomers of these very interesting rarities.

"It is a notable fact that the localities of these two plants have been visited by most all of the noted botanists and general collectors since the good Moravian brethren located and admired them for their beauty and localized habitations.

"Contrary to the history of other rare plants, these have not been disturbed by the encroachments of civilization, cultivation, improvements and forest denudation. Some one surely deserves much credit for such unusual care. I hope they may be spared for many years to come."

Within the writer's acquaintance with the Saxifrage, the plants have apparently suffered little if any injury from any cause, and would appear to have gained in abundance. The Oaks are distributed among well occupied cultivated lands, and the mature trees at least have probably decreased in numbers. An area of woodland denuded in recent years likely included some of the trees. Whatever fate the future may hold for the species in Lehigh county, the trees growing on the Colonel Trexler farm, the piece of woodland included in the Muhlenberg College grounds, and in the grove at Dorney Park, are practically assured of protection.

Trials and Pleasures of the Collector

BY GEORGE WILLIAM BASSETT

Unless one has searched the woods in winter or autumn for specimens it would be hard to realize the difficulties of a collector's work. To go into the bogs on a sunny day in June and pick up *Limodorum* in full bloom—anybody can do that, but to find the bulb in the autumn, when at best one has to identify it by the seed pod, that is another man's work. Then let a winter's snows crush down the stems, leaving but a bit of slender brown curled leaf, and that perhaps broken off short or pulled loose; then you are up against something real.

But it is only a matter of getting your eyes "set," provided you know that you are on the right ground. I have hunted for these bulbs for nearly an hour before I made a strike, then in ten minutes picked up fifty within a section of ditch a rod long.

In May you can't help seeing *Arethusa* if you are where it grows. But you may set a stake by the side of each of a hundred blooms, and in spring if you get ten bulbs out of the lot you are doing extraordinarily well. A few seasons back we located an abundance of these blooms in a cedar swamp with a deep sphagnum bottom where there were perhaps fifty in one space three by ten feet. We were sure of finding it again if wanted, so just blazed a tree at either end of the little moss patch, which was in a half-acre tract of cedar that was just full of *Arethusa*. Next spring, with confidence, we sallied forth to Pennypot Swamp; there were two of us, and after a half-day search we returned with just six bulbs.

But these are extremes. One can find most any plant if he knows where it grows and has seen it in its dormant state. *Blephariglottis blephariglottis*, though at first rather hard to distinguish, after the first one or two of the brown seed pods are located, one's eye becomes accustomed to their form and they are readily picked up if one looks in the right direction. A

sunny day is best, and looking away from a low sun will show them to best advantage. The main thing is to know that *Blephariglottis blephariglottis* grows where you are looking, and that *Blephariglottis ciliaris* does not, for these two are twins.

Another of the collector's trials is to get an order for something he has never seen. There may be no profit in the getting of it, but it hurts to fall down either on the ice or the job. Once we had an order for a small quantity of *Hudsonia tomentosa*. It grew at Quaker Bridge in quantity, but that was out of our way, and I was going to Hampton Gate for *Limodorum* that grew there abundantly. My father told me he had seen quantities of *Hudsonia tomentosa* growing there, but I had never seen it anywhere. Armed with father's description of the plant and the place, away we went. His description of the locality *seemed* good—we found Hampton Gate; there was the large bridge, then the small one some little distance further through the swamp, and after that the sand hill and flat grown over with *Hudsonia*, but for the life of me I could not see where it differed from *H. ericoides*. We collected the number of plants our slip called for, for we wanted the same number of each of the *Hudsonias*, and Hampton Gate is sixteen miles away. We ate our grub in the sunny lee of the sand bank, with coffee boiled over a camp fire, and a little of everything we had been able to gather from mother's pantry warmed in a frying-pan, then we started home with a lot of doubts in our noddle. We never come home the way we go if we can find another road, so this time we came down the far side of the cranberry bogs. A mile or so to the eastward, while I was bent over in the wagon changing boots for shoes, we passed another place, Skits Branch, which from many later visits I have found to also fit my father's description. Here our wagon wheels passed over the plant we were looking for, and had I been looking out I'd have changed my doubts for the plants I was after.

But woe and weal begin with the same letter and you find them both in the same places, according to which you look for. Although I had in the meantime gotten the *Hudsonia* at Quaker Bridge, my failure nettled me. So when the time offered I went back, but this time my eyes were where they belonged,

and in addition to the *Hudsonia*, we made an interesting find of *Schizaea*, a patch that being some half-dozen or more miles up the Quaker Bridge stream probably existed long before the Quaker Bridge patch, although it was not discovered until many years after that first find.

In this little spot "On Skit" there are at least five rare or near-rare plants to this region—*Hudsonia tomentosa*, *Schizaea*, *Lophiola aurea*, *Breweria Pickeringii*, one of the vines of which tripped me and made me find it, and *Abama*, which grows quite plentifully on the marsh above the Bridge. Of the latter there is a fringe clustered around a little spring by the roadside that would make a beautiful illustration, could one but remember to take his camera with him. To find in an out-of-the-way place some rarity and then with each returning visit to add to the list something new, that counts on the pleasant side.

Another thing one enjoys is dining in the open. The appetite is sure, it grows with the day, and if your companion is woodsy, you'll enjoy many a picnic dinner by the wayside. I can't go by Hampton Gate without noting the shelf cut into the sand bank where we set our wagon seat the day we flunked on *Hudsonia*.

If dinner time finds us near Batsto, we are sure to drive into the little clearing among the birches to enjoy our hot coffee, with our backs to the lee of a blanket hung over the rail fence. We have an orchestra there, the brook flows on the other side of the fence and for music there is none sweeter.

Before forest fires spoiled it, there was a sunny little nook on the west side of Atsion pond to which we have driven two or three miles many a day from our work in the woods to cook our dinner and eat it while we'd gaze across the pond at the little green house where Mrs. Stiles keeps the post office, thinking of another dinner she prepared for us one day when we left our lunch at home. And while we would gaze we longed to doze again in the hammock under the pines by the water's edge as on that other day while our dinner was making.

Some Results of Recent Field Work in the Cape May Peninsula

BY BAYARD LONG

Probably no portion of southern New Jersey has been more assiduously explored in the last few years than the Cape May peninsula ; certainly no territory of equal size in the local range has been more prolific in results encouraging to the botanist who is interested in plant distribution.

There are two points of interest, of especial prominence, found in the working-up of the flora of nearly all of our areas here in the eastern United States where botanists have been working for many years : first, of making range-extensions previously unknown ; and second, of clearing up published records of rare plants, specimens of which are apparently not extant or which may be hidden away in old herbaria not now readily accessible or in active use. So interesting a region as southern New Jersey may be expected to have its full quota of plants whose occurrence there has rested for many years solely upon the authority of some published record. Often, of course, there is no reason to doubt the authenticity of a record, but on the other hand a record may be so questionable that no matter what its status, the rediscovery of a plant long lost is always a triumph to the botanist. From the above words it must not be thought that unverified records in southern New Jersey are superabundant over new range-extensions. I wish merely to convey that the former are scarcely of less interest than the latter in critically working up any flora. As a matter of fact the number of species new to this region, discovered within even the last decade, are probably far in advance of the number whose occurrence is still unverified and questionable.

That the botanical riches of any given territory are practically inexhaustible is especially borne out in even the most casual review of the continual discoveries in Cape May. The efforts of

the Philadelphia Botanical Club are yearly productive of startling results, and the same is to be said of the excellent work carried on by Mr. O. H. Brown, who lives near Cape May, and is thus able to systematically and thoroughly explore the region. Some of the more interesting discoveries of a single casual trip made during the past season (introducing Mr. Harold Pretz and other Allentown friends to our Cape May flora) seem worthy of incorporating with some of Mr. Brown's similar and recent finds from other localities, and here putting upon record.

I want to speak of several plants either entirely new to the region or rediscovered after being lost for many years, or at least not collected.

The Swamp Poplar or Downy Poplar, *Populus heterophylla* L., is a species of Austro-riparian affinities, extending north from the Gulf States in two lines of distribution; the one up along the Mississippi, the other along the Atlantic coast—in the present case into northeastern New Jersey, Long Island and Connecticut. As far as southern New Jersey is concerned it has long been a *desideratum*, especially to the botanist familiar with parts of Delaware almost within sight of New Jersey across the lower Delaware River. Around Townsend and Vandyke the tree is locally frequent in woodland swamps, and on the immediate river shore it has been collected at Collins Beach. As is not unexpected, the region almost directly opposite, and similar in many ways to that part of Delaware, contains the only locality previously known in southern New Jersey for this interesting southern tree. This is at Fortesque Beach, in Cumberland county, the record cited by Dr. Britton [1] being due to Mr. Albert Commons. A specimen bearing the label "Low woods on Delaware Bay, July 27, 1880," has been seen by Mr. Stone in the herbarium at New Brunswick, and doubtless substantiates this record. In view of the occurrence of the species in that northern arm of the coastal plain extending up the Hackensack Valley (as well as on Long Island,[2] and doubtless also most of the locali-

[1] Catalogue of Plants found in New Jersey. Geol. Surv. N. J., Vol. ii, 227 (1889).

[2] Sargent. Silva N. A., ix, 164.

ties in Connecticut[1] being in the coastal plain region) it was somewhat surprising that in more than thirty years the extensive field work carried on in southern New Jersey had failed to bring to light any intermediate-lying stations. The area designated by Mr. Stone in his report upon The Plants of Southern New Jersey,[2] as the *Middle District* and the *Coast Strip*[3] is the portion of the coastal plain of New Jersey in which this tree would be expected to occur, *i. e.*, outside of the pine barrens and the maritime region proper.

My unbounded joy can be imagined when on August 13, 1911, in botanizing along the Coast Strip bordering the brackish marshes, below Cape May Court House, I suddenly found myself among a small grove of these trees. Like all the tree vegetation immediately back of the open wind-swept marshes, they are much dwarfed, and really form tall thickets rather than arborescent growth. The habitat, though very different from the woodland swamps of Delaware, is distinctly swampy and mucky.

On the margin and under the shade of nearby thickets of *Myrica cerifera*, Magnolia and Alder, in this deep rich black soil, I was to have my next discovery, *Hydrocotyle Canbyi* Coulter and Rose.

H. umbellata is so frequent in Cape May and so often somewhat proliferous that we had almost put from our minds the rediscovery in New Jersey of that interesting local species known only from New Jersey to Maryland, but here below the Court House, after more than forty years it had turned up again. The station appears to be quite local but plants were abundant, the long, creeping stems matted the one over the other. The species must continue to flower quite late through the season, as many plants were just coming into bloom and fully developed fruit was not yet abundant.

Dr. Britton gives two localities[4] for this species. Parker's

[1] Flowering Plants and Ferns of Connecticut. Ct. Geol. and Nat. Hist. Surv. Bull., xiv, 142 (1910).

[2] Ann. Rep. N. J. State Museum for 1910.

[3] l. c., 80–92. See also the colored map showing these areas.

[4] Cat. Pl. N. J., 113 (1889).

first recording of the plant from Cape May is perfectly authentic; Mr. Stone has examined the specimen still preserved in Parker's herbarium at Princeton. It is dated August 26, 1869. But the other published record, of Commons, from "low ground near Delaware Bay," in Cumberland county, seems open to question. Both Mr. Stone and myself have examined the only specimen found in the herbarium at New Brunswick that seems to refer to this record, and it is unquestionably *H. umbellata.*

When Mr. Brown sent us a bundle of plants of the past season's collecting in Cape May, and it was found that he also had collected this rare little umbellifer, and from another new locality, I could not help being struck by the coincidence of two collections in one year of a plant lost since 1869, but on communicating with him, he tells me of a third collection at Ross' Mill Pond, Green Creek, N. J., on August 13, 1911, the very day the species also turned up at the Court House. Mr. Brown's specimen, which I have examined, is from "low ground along north side of the Pond Creek meadows at Cold Spring, N. J.," collected September 24, 1911. This is near the Delaware Bay shore northeast of Cape May City. Mr. Brown reports the species as abundant at both localities.

At this same locality on Pond Creek he collected another plant very worthy of mention, *Cyperus diandrus* Torr. Despite its reported occurrence throughout New Jersey, it would appear, as far as the southern part of the State is concerned, to be a distinctly rare plant, confined to the region immediately along the coast, and in West Jersey not far from the Delaware River. It is entirely absent from the pine barrens. Doubtless it has been confused with *C. rivularis* Kunth, which is the common species about the Philadelphia district. The specimen from Cold Spring is the first authentic Cape May record known to us, and extends the local distribution in New Jersey considerably southward. The station lies in what represents the Middle District area in Cape May, and assists materially in showing the close connection of this life-area with the Coast Strip.[1]

The third discovery of my Cape May trip on August 13th was

[1] Bartonia, i, 20 (1909).

west of Bennett Station, in the peculiar clay-bottomed bogs which have produced such an abundance of interesting species like *Gymnadeniopsis nivea*,[1] *Boltonia asteroides*,[1] *Coelorachis rugosa*, *Panicum Wrightianum*,[2] *P. hemitomon*,[2] *Xyris elata*, etc. This is also the locality for that interesting southern Beaked-rush, *Rynchospora rariflora* Ell.[3] This was not seen in good condition at this time, but another curious looking Beaked-rush in fine fruit was collected, which on examination proved to be the quite as interesting species, *Rynchospora filifolia* Torr., commonly known only as far north as the Carolinas.

Sometime previously, in working up the New Jersey sedges, I had found in Mr. Stone's herbarium and also in that of the Academy, specimens of a *Rynchospora* collected by Mr. Steward-son Brown, at Woodbine, Cape May County, N. J., on August 30, 1900. The identification of this as *R. filifolia* was later kindly verified by Dr. N. L. Britton.

It was very satisfactory indeed to have discovered this species again and in a new locality, but the satisfaction was certainly heightened when it was found that Mr. O. H. Brown had sent us material of the same species, collected at a third new locality in Cape May—Fishing Creek. He tells me that the plant is quite abundant and that he first collected it on August 20, 1909, but confusing it with *R. gracilenta* Gray, did not give it critical examination, until a subsequent collection on August 10, 1911, showed him that he had a very different thing in hand. The Fishing Creek locality is a bog or pond, similar in character to those west of Bennett. When rainfall is abundant during the year, these areas are shallow ponds, but when the rain is scant they dry out in part or completely. It is on the muddy desiccated clay bottoms of these areas that both Mr. Brown's locality and my own occur.

All depressed, commonly flooded areas in Cape May seem on drying up to support species which do not ordinarily occur around their margins. It is on the dried-up central part of one

[1] Torreya, viii, 16 (1908).

[2] Stone, Bartonia ii, 26 (1910).

[3] Stone, Torreya, viii, 16, 17 (1908).

of the Bennett bogs that the rare *Scleria reticularis* Mx. in its typical form has been collected. In one of the desiccated ponds near Cape May City, Mr. Brown has collected *Psilocarya nitens* (Vahl.),[1] the only New Jersey station known, and in the past season has made the excellent rediscovery of *Paspalum dissectum* L. in Cape May, not collected there to the best of our knowledge since the time of Nuttall. The collection data is "West Cape May, on muddy bottom of dried-up pond, August 25, 1911." He tells me the plant was apparently rare, and that it was fortunate he collected it when he did, because a season of rain occurred the following week, and ever since the place has been under a foot or more of water. Very probably it is an actual fact that many of these rare plants do not get a chance for growth until the drying up of the ponds; at least it is very definite that a large part of these areas have not been collected from because they are ordinarily flooded.

[1] Bartonia, ii, 18, 19 (1910).

General Notes

Additions to the Herbarium. During the year, 3955 sheets of plants have been added to the Club herbarium. These were received from twenty-two contributors, the largest being Bayard Long, Francis W. Pennell, Dr. Thomas S. Githens and O. H. Brown.—S. S. Van Pelt.

***Aralia spinosa* Linn. in Upper Darby.** A locality for *Aralia spinosa* Linn. growing in a dense mass, occurs on a hillside bordering Darby Creek just below Hayville, Upper Darby, Pa. During the fall of this year (1911) I found hundreds of well-grown plants of all sizes, which when in flower presented a gorgeous appearance.—John W. Eckfeldt, M. D.

***Geranium sibericum* Linn. in Delaware county.** The occurrence of *Geranium sibericum* Linn. within the limits of our territory may also be noted. I first discovered this plant in the fall of 1910 on a bank by the side of the Township Line Road in Upper Darby, Pa., occupying considerable space along a stone wall, with a woodland tract on the opposite side of the road. There seems no good reason why this plant of a northern region should have been found only in this one locality, so distant from the places given for its habitat and far from any dwelling. As there seems no reason why it should have been introduced by seeding or intent, it is to me an interesting observation.—John W. Eckfeldt, M. D.

Some Finds at Conowingo, Md. A place making a nice ramble, is a rich river bottom near Conowingo, Md. First you will probably notice the fine trees of *Quercus Phellos*, nearly the northern limit of that tree in this section. In the spring drains and close by grows *Arisaema pusillum* and *Muricauda*, and well hidden from all but the most prying, occasional finds of *Ophioglossum vulgatum*. In an old canal is *Ranunculus pusillus*. Going

up on higher ground is *Meibomia pauciflora*, close by *Scutillaria nervosa*, and later in the season abundance of *Blephariglottis lacera* and more rarely *B. peramoena*. Going down the river a short distance is a rank growth of *Commelina hirtella*, on the bank just above is *Vicia caroliniana* and *Ruellia strepens micrantha*, also *Celtis crassifolia*. *Ruellia ciliosa* is also among the interesting forms growing at Conowingo.—JOEL J. CARTER.

***Aster amethystinus* Nutt. in Bucks Co., Pa.** The rare and uncommon *Aster amethystinus* Nutt. was discovered by me on Cochran's Hill, back from Narrowsville, Bucks Co., Pa., in an open woods. This occurred in a single specimen and was found September 30, 1909. This year (1911), after an almost vain search for a whole morning, I came across a clump along the open border of a woods facing the south, back of the high rocks of Nockomixon. Witnessing these plants in full bloom, with their soft blue heads and graceful forms, they were an object of great admiration, to say little of the gratification of finding such a beautiful and uncommon aster.

It might be well to state that this species pertains of the character of *A. multiflorus* Ait. and *A. novae-angliae* L., and is suggestive of a hybrid, yet this plant did not occur where the former ones were usually seen.—JOHN W. ECKFELDT, M. D.

Interesting plants in Lower Lancaster Co., Pa. In southern Lancaster Co., Pa., there are several isolated places having a flora entirely different from that of the land immediately adjoining. These places are limited in area, seldom containing more than one to three acres. Most of them show they are a glacial drift, while in others the evidence is not so manifest. One of the more interesting to me borders closely on one of its sides to the serpentine. The ground is not swampy, but moist in most places. That part containing the interesting plants is not more than an acre in extent. It is covered rather thickly with coarse grasses, such as *Sorghastrum*, *Andropogon*, etc., with two or three patches of *Prunus americana* and *Corylus americana*. Amongst the less interesting plants are *Deschampsia caespitosa*, *Sanguisorba canadensis*, *Perularia flava*, *Salix tristis*, all found in other places nearby. The more interesting are *Ibidium*

linearis, very scarce, only a few plants; *Stenanthium robustum*, fine plants with panicles 18 inches long, like a great white ostrich plume; *Solidago rigida*, *Rudbeckia fulgida*, *Lacinaria spicata*, *Phlox pilosa*, *Prunus cuneata*, and a peculiar *Kneiffia* with cuneate capsules, all these growing in a radius of thirty yards.

In a Sphagnum swamp, not far from the place noted above, grows *Gaylussacia dumosa*, probably the only station in Lancaster Co., Pa. It was close to this that my grandfather, Joel Jackson, found, over sixty-five years ago, a bush of *Baccharis halimifolia* growing, the bush gone now for many years.—JOEL J. CARTER.

Chlorophyllous State of *Syndesmon thalictroides* (Linn.) Hoffmg. It may be interesting to note the occurrence within the observation of the author of a chlorophyllous state of *Syndesmon thalictroides* (Linn.) Hoffmg.

This plant was first found by me in an open thicket bordering the serpentine barrens of Chester County, Pa., April 17, 1909. It was growing among normal types of plants of the same kind, and only three specimens could be located.

When first observed these plants looked very curious. They were standing out by themselves partially away from the denser portion of the wood, in dryer soil, and receiving more of the direct sunlight were easily recognized. The general appearance of the plants seemed strange among the others, the peculiarity by which they were noticed being the general uniform green condition of the entire floral appendages. As no other distinction could be observed, on examination I found that the sepals, stamens and pistils were all of a uniform deep green color.

Having never found such a condition in this plant before, I removed it to my garden in order to watch its future development, where the following year the same condition was again produced. I also secured a specimen for the use of the Herbarium which can be seen at any time. After an afternoon's search in 1911, I utterly failed to find this type in that locality again.

It is evident that the occurrence of this plant in that particular condition was caused by some peculiar environment, probably

due to the nature of the soil or some tendency in the plant to revert the nature of the sepals into true bractoidal leaves.—JOHN W. ECKFELDT, M. D.

Chaetochloa magna **(Griseb) Scribn. in Cape May Co., N. J.** On Sept. 17, 1911, while going along the road from Schellinger's Landing to Cold Spring, N. J., I noticed some tall grass growing near the edge of the salt marsh, among the *Baccharis halimifolia* and much taller than that shrub. On investigating it I found to my surprise that it was a clump about ten feet across of *Chaetochloa magna* (Griseb) Scribn.; a grass I had been frequently asked by members of the Club to look out for, as a single specimen had been collected near the Lighthouse by Mr. Witmer Stone a good while ago. On showing the specimens I collected to some friends, it was readily recognized by one of them who told me that plenty of the same thing grew on the Pond Creek meadow when he lived at Higbee's Beach in 1886–1887; so on Sept. 24, I visited that locality and sure enough I found plenty of it growing over quite a large space of brackish marsh, back of the beach. Possibly other localties will turn up as the ones noted above are quite widely separated, one being along the seaside meadows, three or four miles from the Pond Creek station. As it is such a large plant—one culm I cut was nearly nine feet tall—it is strange it has not been noted by some one before, as in company with some of the Club members I collected plants within a few hundred feet of the seaside locality during Sept. 1908 and it might have been growing there at that time.—O. H. BROWN.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1911.

January 26, 1911. Nine members present. Mr. Witmer Stone spoke of the distribution of Southern New Jersey plants, dividing the region into four sections: the Coastal Strip; the Pine Barrens; the Middle District, surrounding the barrens to the west and north, and supporting a flora very similar to that of Eastern Pennsylvania and the Cape May Peninsula. Along the borders of these four sections there are finger-like interlockings of the different floras. Seventy percent of the species found in the Middle District are of northern affinities, while a large part of the Pine Barren plants are of southern affinities, common to Virginia and the Carolinas. In all the regions except the Pine Barrens, the northern plants are in the ascendency especially is this true of the section west of the Barrens. In the Pine Barren region are also found sphagnum bogs and physical conditions similar to the glaciated regions of the north with many of the same species of plants. It is interesting to speculate on the origin of the two floras, one of northern affinities and the other of southern. To get at the truth it is important to know whether New Jersey was submerged before or after the descent of the glaciers. In Cape May Peninsula the Pine Barren region is cut off entirely and here is to be noted the predominance of plants of northern affinities. The total number of species collected in the whole region was 1371, the middle District having by far the larger number. Specimens illustrating typical plants of the different sections, with special attention to their northern and southern affinities were shown on the wall.

February 23, 1911. Nine members present. Mr. Charles S. Williamson spoke of a trip to Mt. Washington, N. H., and vicinity during the previous July, illustrating his talk with specimens of the plants collected.

March 23, 1911. Ten members present. Mr. Bayard Long discussed the *Ovales* group of *Carex*, illustrating by specimens and drawings. As a help to the naming of the different species, time and habit of blooming should be considered, which with some is all the season, but with others of short duration. The habitat is also a help. Mr. E. B. Bartram exhibited some specimens of plants collected by him on the coast of Massachusetts, in the vicinity of Boston, during July and October, 1908, and again in the spring of 1909. Among the more interesting species collected were *Teucrium boreale* Bicknell and *Sagina nodosa* (L.) Fenzl., probably its southern limit. Mr. Crawford exhibited a few of the plants collected by him in the Panama Canal zone, and spoke briefly of the flora and climatic conditions.

April 27, 1911. Eighteen members present. Francis Windle, West Chester, Pa., was elected a member.

Mr. Witmer Stone spoke of the progress of his work on the distribution of the Plants of Southern New Jersey, exhibiting water-color drawings of many of the species by Hugh E. Stone, of Coatesville, Pa. Some very superior half-tone illustrations of the fruiting heads of grasses and sedges were also shown. Practically all the records are based on actual specimens examined, the bulk of which are contained in the Club herbarium. An interesting feature of the work will be short biographical sketches of the botanists for whom plants are named, which are added after the descriptions of the plants. The time of flowering and fruiting of the species is based on actual observation.

Mr. Brown spoke briefly and informally of his trip to South America from December 26, 1910, to April 18, 1911; though not primarily in the interest of botany about 1000 plants were brought back.

May 25, 1911. Twelve members present. Mr. Henry A. Lang told of a trip taken to Jamaica in August, 1910, describing his sensations from the time of his arrival at Port Antonio, being almost overwhelmed by the luxuriance of the vegetation: orchids, ferns, palms, cacti, etc. *Leguminosæ* were very abundant, both in species and individuals.

Mr. Long exhibited a jar of water from Wilmington, N. C., in

which was growing *Spirodela polyrhiza* (L.) Schleid., *Lemna minima* Philippi, and *Wolffiella floridana* (J. D. Sm.) Thompson.

September 28, 1911. Fifteen members present. Mr. Van Pelt commented upon some of the new species added to the Club herbarium during the summer, including *Panicum aciculare* Desv., *P. angustifolium* Ell., *P. aculeatum* Hitch. and Chase, *Chaetochloa magna* (Griseb.) Scribn., *Pogonia divaricata* (L.) R. Br. (in fruit), *Aster parviceps pusillus* (Gray) Fernald, and *Geranium sibericum* L.

Mr. Stone spoke of a trip to Atsion, N. J., July 19, in company with Messrs. Long and Brown, when *Xyris arenicola* Small was collected, growing in dry sand, in spiral tufts. This is the first authentic record of the plant in New Jersey since its collection by D. C. Eaton in 1860. Mr. Williamson recorded *Chrysopsis falcata* (Pursh.) Ell., and *Breweria Pickeringii* (M. A. Curtis) Gray, from Atsion.

October 19, 1911. Eighteen members present. Joseph R. Mumbauer, Pennsburg, Pa.; William A. Kline, Ursinus College, Collegeville, Pa.; F. F. Huber, Pennsburg, Pa., and Dr. John W. Harshberger, 4839 Walton Ave., Philadelphia, were elected members, and Prof. Stewart H. Burnham, Albany, N. Y., a correspondent.

Mr. Bartram gave an interesting account of a trip taken to Newfoundland during the past summer in company with Prof. M. L. Fernald, Prof. K. M. Wiegand and Mr. Darlington, describing the character of the country traversed and different characters of the flora, according to geological and other conditions.

Mr. Bassett sent a fine collection of cut dahlias to the meeting for distribution among the members.

November 23, 1911. Twelve members present. Mr. Charles S. Williamson described a trip to Labrador during the past summer, illustrated with specimens collected. Twenty-five species not recorded in the lists of plants for the region were collected.

December 28, 1911. Annual meeting, seventeen members present. The following were elected as officers for the ensuing

year: President, Stewardson Brown; Vice-President, E. B. Bartram; Second Vice-President, Joel J. Carter; Secretary, Lee Sowden; Treasurer, Arthur N. Leeds; Curator, S. S. Van Pelt; Associate Curator, Bayard Long. Prof. Mortford D. Melchior, Pennsburg, Pa., and Rev. W. W. Kistler, Pennsburg, Pa., were elected to membership.

Mr. B. H. Smith spoke of a trip made last summer to Yellowstone National Park. Giving first a brief history of its discovery, he told how slow was the public to believe in its wonders, how the government gained control and ultimately properly protected it against the spoliation of its natural features. Three-fourths of the trees consist of *Pinus Murrayana* Balfour. The herbaceous plants observed were mostly those common to the Rocky Mountain region, a number of specimens of which were shown on the wall.

Mr. Windle drew attention to the winter-flowering habit of *Draba verna* L. On December 8th he found it in bloom at Meehan's nurseries, Germantown, and has noted it elsewhere in similar situations flowering throughout the winter.

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club.

1912.

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	Died.
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WILLIAM M. CANBY, Honorary.....	March 10, 1904
DR. WILLIAM HERBST, Honorary	December 22, 1906
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DR. SAMUEL P. SEESE, Active.....	1911
USELMA C. SMITH, Founder	April 2, 1902

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No. 5 1912

BARTONIA

A BOTANICAL ANNUAL

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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LOPHIOLA AUREA, *KER*

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 5. PHILADELPHIA, PA. 1912

Lophiola aurea *Ker*.

BY STEWARDSON BROWN

Only those who have ventured into the heart of the Pine Barrens during July or perhaps late June have had the opportunity of seeing *Lophiola* in its full perfection, for it has a beauty peculiarly its own, being quite different from any of our other wild plants. To see it though requires an effort, and probably few but the most enthusiastic would not hesitate when considering the discomforts likely to be encountered on such a trip; the tramp over roads of deep sand under a broiling summer sun, encouraged by vast swarms of blood-thirsty mosquitoes and equally persistent deer-flies. But notwithstanding all these unpleasant features it is decidedly worth while and any one taking a trip into the Pines for the first time will probably be so carried away with the pleasure and novelty of it all, that the discomforts will sink into insignificance. *Lophiola* is seen at its best in the bogs which border the Pine Barren streams, usually growing more or less in scattered colonies though at times forming masses of such extent, as to become a distinctive feature in the landscape and identifiable from a considerable distance. The plant spreads by means of slender stems just beneath the surface

of the ground, the young plants thus formed resembling closely the surrounding grasses. In early June the flower scapes begin to show themselves arising from a tuft of grass-like basal leaves, but it is not until the end of this month or early July that the flowers open, the period of flowerirg lasting for about a month. The stem arises to an average height of about eighteen inches, occasionally reaching two feet, is simple and terete, smooth or nearly so below, more or less hairy above and of a bluish-green color. The stem leaves are few and clasping, much shorter than the scape, the uppermost reduced to mere narrow scales. The inflorescence forming a corymbose head is densely white woolly with a slight tinge of green, stems and unopened flowers alike. The flowers of which but four or five are in blossom at one time, are about three-eighths of an inch across; the six perianth segments are deep yellow, almost an orange, smooth at the tips and densely tufted with brilliant yellow hairs and shine out like little stars through the mass of white. The crest of hairs at the base of the perianth segments is most striking and has given rise to the rather appropriate name of *Golden Crest-flower*. The perianth being persistent, the white woolly appearance of the upper part of the plant is retained during its later growth though with less brilliancy than when in flower.

It would seem likely that Frederick Pursh was the first to discover this striking plant in our region describing it in his *Flora* under the name of *Conostylis americana*,[1] in the description of which he says "this singular and beautiful perennial I discovered about the year 1805." Unfortunately however his name was antidated by that of *Lophiola aurea* Ker. in the Botanical Magazine[2] which appeared two months at least before the description of Pursh. Ker says his description and plate were made from a plant "introduced by Mr. Lyon in 1812." "Mr. Lyon" was John Lyon, later honored by Thomas Nuttall in his genus *Lyonia*,[3] who for a time was in charge of the gardens of William Hamilton Esq., known as the Wood-

[1] Pursh Flora Am. Sept. Vol. i, p. 224, 1814.

[2] Bot. Mag. pl. 1596, November 1, 1813.

[3] Nutt. Gen. Vol. i, p. 266.

lands,[1] remaining there until 1802 when he was succeeded by Frederick Pursh.

It would seem probable that Lyon engaged at this time in the collecting of plants in a more or less commercial way for the records show that in 1805 he visited England with collections of living plants and seeds which were sold at auction in London and that between that date and 1812 when he made a second trip to England, he spent much time exploring the Carolinas, Georgia and Florida. Where he kept his collections thus made is not known but at least they were accessable to Pursh for after referring in the preface to his *Flora* to the opportunity of studying the collections made by Lewis and Clark, Enslen and others he says:[2] "at the same time I had frequent opportunities of seeing the herbarium and collection of living plants of Mr. John Lyon, a gentleman through whose industry and skill more new and rare American plants have lately been introduced into Europe than through any other channel whatever." Among the rare plants thus introduced in 1812 was the specimen of *Lophiola* from which a year later Ker's description and plate were drawn, the specimens having likely been collected in our New Jersey Pine Barrens, though it may have come from Carolina as its occurrence there at that time was noted by Pursh in his distribution of the species.

Lophiola is a typical plant of the wet Pine Barrens of the Coastal Plain ranging in its distribution from New Jersey to Florida. In New Jersey, which is the region of its distribution considered in detail in the present paper, it is confined exclusively to the Central Pine Barrens and in its greatest abundance in the Mullica River drainage including with the Mullica, the Batsto and Wading Rivers, in many of their broad stretches of savanna being a striking feature of the vegetation.

On the Mullica it has been collected on headwater streams at Atco and Jackson; at Parkdale on the Sleeper Branch; at Hammonton and its vicinity on the Hammonton Branch and tributaries, and at Atsion and Pleasant Mills on the main stream.

[1] Now Woodland Cemetery Philadelphia.

[2] Flora Am. Sept. Vol. i, p. xiii.

On the Batsto it is found in greater or less abundance in all suitable situations from the crossing of the Central Railroad of New Jersey, a short distance south of Hampton Furnace to the extensive stretch of bog near the head of the dam at Batsto, at which locality it is very plentiful. Perhaps it is on the Wading River, however, that the plant is most commonly to be met with, as it is a striking part of the vegetation in all the bogs on this stream and its tributaries where such have been observed. It is frequent on Long Cripple Branch east of Woodmansie, and on the West Branch and its tributaries at Chatsworth, Jones' Mills, High Bridge and Speedwell.

In the Great Egg Harbor drainage *Lophiola* is found on the headwaters at Berlin, at Eighth Street, Harmony Bridge, and at Elwood, which is the most southwesterly locality in New Jersey of which we have knowledge.

In the bogs drained by streams flowing into Barnegat Bay between the mouth of Toms River and Tuckerton, *Lophiola* occurs frequently and in abundance. It is recorded at Lakehurst (Manchester) on the Union Branch of Toms River; at Toms River and near Island Heights on the main stream; at Double Trouble on Cedar Creek; at Stafford's Forge and West Creek on Westecunk Creek; at Forked River; at Mayetta on Cedar Creek and at Tuckerton.

In the Delaware River drainage, *Lophiola* has been found in bogs at the headwaters of three streams: at Cookstown on Crosswicks Creek where it was collected by William M. Canby in August, 1895; on tributary streams of the Rancocos Creek in the heart of the Pines, at Hanover, Whitings and Pasadena, and at Clementon, at the headwaters of a branch of Timber Creek.

Our only positive record of the occurrence of *Lophiola* in Delaware is in a collection made by Albert Commons, August 5, 1874, in Pine Barren Bogs between Gumboro and Laurel, that the plant occurs elsewhere in this region seems likely though we have neither specimens nor records to confirm it.

The genus *Lophiola* which was described by Ker is an extremely interesting one, containing as it does but the single species here considered, and so different is it from anything else

known that there is a disagreement among the authorities as to the family in which it should be placed. By some it is considered as belonging with the *Haemodoraceæ*, while by others who should be equally capable of passing judgment it is grouped with the *Amaryllidaceæ*, but in whichever family it may eventually be placed should the doctors come to an agreement, it will be a unique addition.

The Trail of the Winding Water

BY GEORGE WILLIAM BASSETT

For a number of years several members of the Club have projected a trip down one of the rivers to the eastward of Hammonton. The Egg Harbor River has been quite popular with canoeists for some time, and has been pretty well explored by members of the Club; but the Mullica system seems to be virgin territory to botanists except at a few points like Atsion, Quaker Bridge and Batsto.

Some plans are slow to ripen, but ours, like most of 'em, mellowed at last, and one bright June afternoon found Witmer Stone, Stewardson Brown, B. Long and I, with Morton Crowell and Leon Andrews as expert canoemen, with our faces set to the east. Hampton Furnace (the "Unknown Furnace" of the Revolution) was to be our starting-point on the river, and although Long lingered by the way gathering specimens of huckleberries, thereby shortening the crop of fruit in that section considerably, we covered the nine miles in a couple of hours, arriving at Hampton about five o'clock.

After a short discussion on the weather, we decided to camp while the camping was good, instead of proceeding down stream to our usual camp ground as had been our intention. Later events proved the wisdom of this, for scarce had our tents been pitched ere the rain came down in torrents. We drove the last pegs with a hustle and hurriedly trenched around the tents. Then there was a grab and a scramble for coats and for shelter, but before we reached the cranberry house our backs were sprinkled quite enough for ironing day.

While the rest of us were pitching the tents, Mort had been busy at the fire and had our supper ready for us to enjoy in comfort and leisure inside—where we usually enjoy our meals. We have mislaid the menu and cannot tell you all the good

things that were set before us, but there was something that remembers like beefsteak broiled on a stick, hot coffee and bread. There were other things, but what profit is there in thought of other things when you have these three?

Supper over, there was further illustrated discussion of weather topics, a climb to the fourth story to view a burning barn fired by the lightning, and then about ten o'clock we sought our tents. The rain had ceased and we turned in for a good night's rest, but we didn't get it—not all of us. There were two tents, Brown, Long and Andrews occupying one. I don't know how they slept, but we heard their voices far into the night. Crowell is a veteran camper and was soon snoring comfortably on my left, but Stone on my right squirmed and twisted all night long and so did I. In our haste we had landed on top of a slag heap from the old furnace that time had leveled. Our bed was downy, but it was "batsdown," the red variety.

But morning came and we were happy again. The botanists wanted to go up to where Skit's Branch and Tuckerton Road cross, and Mr. Craig, superintendent of the bog, kindly drove us up. It rained slightly while we were there, but we were well repaid by the splendid show of the *Abama*. At this station it is the best we ever saw. There is a stand like a field of wheat, and the grain at the harvest is not more golden than is the *Abama* on Skit.

When we got back to Hampton, Mort and Leon had the tents down and the canoes partly loaded and we were soon away with the current. Now we found that the rain was a benefit. A raise of several inches in the stream helped us over many an obstruction.

The stream runs for a few rods through a meadow, then dives under a copse of maples, and at once we make our first discovery. For a rod back from the stream, trailing over and matting the brush, tumbling and rolling in waves over the bank to the water's edge for an unbroken quarter of a mile, grew more *Lygodium palmatum* than I had imagined ever grew in the whole world. It is hard to estimate the length of a canoe's trail, but we agreed that there were at least five miles, as the river turns,

of *Lygodium*. There are a number of stations for the climbing fern in and around Camden County that have been nearly annihilated by the colored flower venders, and were this not so far, I should hesitate to reveal the secret of its hiding-place. But few who follow the trail of the winding water are vandals, so I have no misgivings. I fear not the man who takes home a few sods for his fernery, he is trying to perpetuate what the man who grabs all the fronds he can carry away is heedlessly destroying, with but a fleeting pleasure to himself.

But we must be off; for the trip is long and other things are awaiting us down the stream. A couple of miles below is the railroad bridge and beyond that *Abama* grows and beyond that is more, and beyond that is more—twenty-five miles of it is our estimate. This too is a rare plant in other places but it cannot, like the *Lygodium*, boast of special laws having been passed for its preservation. On the contrary, laws of nature seem to have decreed its annihilation, as it is supposed to have been at one time much more common.

Another two miles and we rounded up at our wharf at "Crescent Bluffs," for dinner. Here we idled an hour snoozing under the pine trees. Pine needles are much more conducive to slumber than are brickbats. We did not all idle however—Stone spent his hour in a bootless quest for the tail of the root of a *Euphorbia*. I disremember how much of it he got, but he left a powerful deep hole as a monument to his industry. When he had done rooting we started again on our downward way, tarrying a while at Quaker Bridge vainly searching for *Pogonia divaricata*, reported from there many years ago. We were still keeping a lookout for *Lygodium*, but halfway from the railway bridge we saw the last of it. But every turn of the river however, revealed more *Abama* and *Lophiola* growing in the broad marshes, and Stone would frequently wade through them searching for their sister plant, *Tofieldia*, bringing back only wet feet and disappointment.

One of the things that struck me forcibly, was the remarkably fine lot of Nymph—I almost said it—*Castalea odorata*. I hate to give up the much more appropriate name of *Nymphaea*, for this species, that describes the flower so well. The blooms

VIEWS ON THE BATSTO

were large with the usually chaste white petals and golden stamens, but in nearly every specimen the sepals were of a rosy pink hue, a delightful combination. We went down this river five times last summer and these pink-sepaled lilies were always a puzzle to us until one day our neighbor who owns the cranberry bog brought over some Cape Cod lilies from Hampton where we learned he had been growing them for years. The Cape Cod lilies are beautiful; the pink tint suffusing the whole bloom is lovely, but the monotony of its one-tone cannot be compared to the brilliant pink-white-and-gold of this natural hybrid.

This is an all-season river; there is always something at its best or just coming on. It may lack the fine show of the *Iris versicolor* of the Egg Harbor River; the small patches of yellow water-lilies of this river may not compare with the golden stretches at the head of Weymouth pond and the Royal Fern may not grow luxuriantly here, but there are more than enough other things to make up for these deficiencies, any time you may go down it.

While Batsto River has practically no Sweet Gums, the Atsion River is literally lined with them. One hardly leaves the railroad bridge at Atsion ere he is plunged deep in a swamp of Cedars and Gums which grow up from the water's edge, sometimes completely arching over the stream. The Atsion furnishes a nice trip—but it's a man's work to negotiate it—and the Sour Gums of the Batsto are far prettier to me than the Sweet Gums of the Atsion.

We had no exciting incidents to relate. Long lost his hat overboard, and had to borrow a cap several sizes too large for him to wear home the next day, and we got a beautiful snapshot, almost, of Brown and Andrews, each with a foot in the water trying to get the canoe off a snag. But Brown was quicker than the shutter, and the only thing we got on him was a happy smile of triumph, and Long got back his hat at Christmastide, suitably decorated with reminders of our outing.

A number of things were not at this time at their best; on an earlier trip we had seen acres—perhaps millions of blooms—of *Sarracenia*, a most magnificent sight. Then later in a previous

season we happened along when *Sclerolepis* was at its best. Did you ever really see a large quantity of this in bloom? The architect of this landscape is an impressionist and painted it in with a big brush and used long strokes—such a little flower, but oh, so showy in masses.

One of the last things of note is the *Scirpus cyperinus* at the head of Batsto Pond. The shores are far apart and the channel is narrow, winding about from one side to the other, and at times one sitting in a boat is completely hidden from the shore by the *Scirpus* that grows everywhere but in the channel. I have seen it growing here in solid ranks four or five feet above the water.

We sighted Batsto dam about five o'clock in the afternoon, landing down in front of the old mansion soon after. To load the canoes and drive back to the house took us a couple of hours. Then there was a hurried wash-up and supper served-in-a-hurry to enable Stone to catch the late train back to town. The crowd didn't look comfortable to me hurrying so. They were all hustling to go with Stone, so, when the clock (it was fast) said fifteen minutes to train time, I told them it was impossible to catch the train short of fifteen and a half. They stayed and the rest of the lunch was finished as it should be. I think it is as much fun to linger over the supper table talking over the finds of the day as is the outing itself. But you must take the trip first, else you haven't it to talk about. And anyway, if I had let them keep on hurrying, who knows what pangs of indigestion they might have suffered, and they might have missed the train too, at that. What worse luck could befall than to miss both train and supper. Our evening meal is our mainstay and our joy; a fitting finish to a day of toil, and moderately indulged in is sure to bring comforting sleep. Sad will be the day when both our supper and time to eat it fail us.

Joel Jackson Carter

Joel Jackson Carter was born at New Texas, Lancaster County, Pa., June 16, 1843. His early life was spent with his parents, he eventually farming his father's place until 1871, when he purchased and moved to a farm in Virginia near Fairfax Court House. In 1877 he gave up farming for a time, engaging in the hardware and implement business at Illinois, Delaware, until 1883, when he purchased a large farm near his old home at New Texas, remaining there until his death. Mr. Carter was married in 1868 to Mary Sue Haines, who survives him; there were no children.

With an innate love for nature in general, his especial interest was in the study of botany. This was doubtless stimulated by his acquaintance with Dr. Thomas Conrad Porter, a frequent visitor at his father's home. His knowledge of the plants of his own region was particularly intimate, and nothing afforded him greater pleasure than to share this knowledge with his friends when visiting the haunts of some of his favorites year by year. His knowledge and interest was not confined, however, to the plants at home, as he was a frequent companion of Dr. John Kunkle Small in his explorations of southern Florida and the Everglades.

A man of rare character, Mr. Carter was a conservative in all things. His speech was guarded and well considered, and his opinion, frequently sought, was invariably followed. There was nothing superficial in his nature; he was honest, sincere and conscientious in all things and with every one. Though making no pretentions of religion, he was religious in the best and broadest sense, apparently always trying to make the most of life by living a clean, strong manhood.

A sufferer for a long time from tuberculosis, he was fully prepared to meet the great changes which were to come to him in the peaceful ending of his long and honorable life on May 4, 1912.

Benjamin Heritage

Benjamin Heritage was born August 18, 1833, on his father's farm, two miles south of Mickleton, N. J. His parents, Jonathan and Esther Heritage, were sturdy Friends, descended from a line of ancestry of Quaker stock.

Benjamin developed into a youth of more than usual intelligence, possessing qualities of energy, accuracy and perseverance, and though mainly self-taught, when reaching manhood was possessed in some departments of almost a collegiate education.

In 1855 he became head teacher in the Friends School at Mickleton—it being at this time the district school also—teaching during the winter months and working on his father's farm during the growing season, continuing thus for eleven years.

Upon the death of his father in 1869 he inherited the homestead farm, at once taking an advanced position in practical agriculture, devoting much attention to the raising of fruit.

Having built himself a home in Mickleton, he gave up farming and retired thence in 1881, continuing, however, his interest in fruit and flowers, though chiefly with a view to ornamenting and beautifying his home.

During his active farm life he found time for nature study, developing a particular love for botany, to which study he devoted much time after his retirement from active business, resulting in his collecting and preserving specimens of nearly all the species of plants growing in the lower section of the state. His herbarium, containing more than two thousand specimens prepared with much care and skill, was bequeathed to the George School at Newtown, Pa.

Among the founders of the Philadelphia Botanical Club in December, 1891, he participated actively thereafter in its affairs, contributing liberally toward the building-up of its herbarium

until prevented by failing health. His knowledge of our flora was always at the disposal of those interested, and no amount of trouble seemed too great in order to obtain desired information for another. Active in public affairs, he held a number of positions of trust, often being called on to settle differences and difficult problems, for which his good judgment eminently fitted him. Hospitably inclined, he much enjoyed his friends, of whom he had a large circle.

After two years of much suffering, the result of an accident, the end came peacefully in the early morning of August 19. His remains rest in the cemetery adjoining the meeting-house at Mickleton, where he had attended divine worship regularly throughout his long life.

General Notes

Additions to the Herbarium.—During the year 3584 sheets of plants have been added to the Club Herbarium, the largest contributors being Bayard Long, Harold W. Pretz, George W. Bassett, O. H. Brown, E. B. Bartram and Charles S. Williamson.—S. S. Van Pelt.

Noteworthy Plants from Southern New Jersey—

Quercus nigra L.

In view of the fact that quite a number of southern plants and trees find their northern limit of distribution in southern New Jersey, perhaps it should not be surprising to find another southern tree, *Quercus nigra* L., the Water Oak, in Cape May Co., N. J. A leaf specimen was collected from a small tree near Bennett's Station, Aug. 13, 1911, and identified by several members of the club as this oak, but as there was no material except a few leaves, final judgment in the matter was deferred until the tree could be looked up again. On Oct. 20, 1912, I again visited the locality and not only found the original small tree but many others of all sizes, some of them in good fruit. A week or so later Mr. Bayard Long and myself looked them up again and discovered many more of these trees, together with some that were undoubtedly hybrids between this and *Quercus phellos* L., which grows in this locality. The range of these trees covers several acres of low woodland, about one mile northwest of Bennett's Station, Cape May Co., N. J.—O. H. Brown.

Gymnadeniopsis integra (Nutt.) Rydb.

On August 16, 1912 I had the pleasure to discover two plants of the rare orchid *Gymnadenopsis integra* in a cleared boggy spot near Swain, Cape May Co., N. J. They were associated with *Blephariglottis ciliaris*, *Polygala cruciata*, *Polygala viridescens*,

Lobelia Nuttallii and *Rhexia*. My discovery was purely accidental. I was struck with the brilliant display made by the orange blossoms of *Blephariglottis ciliaris*, and while inspecting an unusually rich growth of this plant I noticed two plants in which the characteristic fringe was not present on the floral lobes. I observed but the two plants, which are now in the herbarium of the Philadelphia Botanical Club, but I did not search very diligently as I was not aware, at the time of their identity.—HENRY FOX.

Eryngium yuccifolium Michx.

Last July Mr. William Roper, of Atco, N. J., brought to the Academy a specimen of *Eryngium yuccifolium* Michx. that he had found growing near Pestletown, N. J. On September 29th I visited the locality and found the colony of plants. Three or four were bearing fruit, some only one head, but the greater number had not yet reached a blooming age. They were growing along two sides of a narrowly triangular plowed field. Those on the borders of the wood will probably be safe, unless the woods be cut down; the others, growing along the road, are, however, in a precarious situation. Associated with the *Eryngium* was *Helianthus mollis* Lam., which grew in great abundance on the narrow strip of turf between the road and the field. This, owing to its stoloniferous habit, is in no danger of extinction. In the West and South, where I have found the *Eryngium*, it has always been in rather moist situations; here it was in dry sand. From its association with *Helianthus mollis* it certainly leads to the inference that it is an introduction. The plant in the herbarium of Benjamin Heritage from the "Pine Barrens of New Jersey" is perhaps from this same locality. In *Britton's Catalogue* the plant is recorded by Canby as growing in dry sand between Atsion and Quaker Bridge, but I very greatly doubt if the plant is anywhere native in New Jersey.—CHARLES S. WILLIAMSON.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1912

January 25, 1912. Eight members present. Mr. Witmer Stone gave an account of trips made in June, 1907, and August, 1910, to the village of Jennings, in the Allegheny Mountains, Garrett County, Maryland. This section being below the glaciated region does not have the usual lakes and ponds, but is interesting because of the varied types and wide range of plants. Of the trees, Hemlock and Black Spruce were plentiful, as well as several Oaks, Chestnut, Sugar Maple and Ash. The size and fine development of the herbaceous plants growing in the region is worthy of remark, being much larger than examples of the same species found with us. *Saxifraga micranthidifolia* was one of the most striking plants. In the vicinity of the village some of the plants noted were *Acer pennsylvanica*, *Hepatica acuta*, *Gentiana linearis*, *Lilium superbum* and *Phlox reptans*, very abundant. *Allium tricoccum* was much relished by the natives as food. Throughout the region, in dry, rocky places, was noted *Menziesia pilosa*. The flora at the top of Meadow Mountain, the summit of the Alleghenies, was extremely interesting. In the drier places grew *Pinus rigida*, *Cypripedium acaule*, *Azalea nudiflora*, *Hypericum densiflorum* and several species of huckleberries, while in the wet places were *Dryopteris cristata*, *Carex folliculata*, *Viburnum dentatum* and *Drosera rotundifolia*. The flora was very much as in the pine barrens of New Jersey, and is quite likely a remnant of an early primitive flora such as we have there. Among the more southern plants noted were, first, those limited to the Southern Alleghenies, such as *Cimicifuga americana*, *Saxifraga micranthidifolia*, *Angelica Curtisii* and *Phlox reptans*. Of those common to the Mississippi and Ohio Valley region were *Magnolia acuminata*, *Disporum lanuginosum* and *Dasystoma laevigata*.

Mr. Long noted some additional finds in Cape May County, New Jersey. At Cape May Court House a small grove of *Populus heterophylla*, a southern coastal tree; a *Hydrocotyle* growing in muckish ground in the dense shade of thickets in considerable abundance, though with very few flowers, proved to be *H. Canbyi*, a very local species of Maryland and Delaware. At Bennett, *Rynchospora filifolia* was found.

February 29, 1912. Fourteen members present. Mr. S. S. Van Pelt spoke of a collection of plants from Cape May County, New Jersey, received from Mr. O. H. Brown among which were a number of special interest, including *Dryopteris cristata*, *Andropogon Elliottii*, *Paspalum dissectum*, *Amphicarpon amphicarpon*, *Panicum commutatum*, *P. condensum*, *Chaetochloa magna*. *Sporobolus asper*, only known in the State at Cape May, *Cyperus retrofractus*, *Rynchospora filifolia*, *Xyris elata*, *Smilax pulverulenta*, *Corallorhiza odontorhiza*, *Chenopodium leptophyllum*, *Bassia hirsuta*, *Solidago Elliottii*, *S. arguta*, *Boltonia asteroides*, *Lespedeza procumbens* and *Lespedeza Stuvei*. Mr. Stone noted a large colony of *Lygodium palmatum* on Cooper's Creek near Haddonfield, New Jersey, observed by him on February 22.

March 28, 1912. Sixteen members present. Mr. Daniel W. Hamm, Allentown, Pa., was elected a member.

Mr. Francis W. Pennell spoke on our local species of *Gerardia*, exhibiting a number of herbarium specimens. He included not only *Gerardia* proper but the two closely related genera *Dasystoma* and *Otophylla*, the last named having sessile flowers, occurring only occasionally in our range; Darlington lists it in his *Flora Caestrica*. The *Dasystomas* were found to be parasitic only on the oak, the white and black oak groups. Parasitism was especially marked in *D. pedicularis*, the annual species of the genus. A slight fragrance was also noted about this plant. In *D. flava* the most distinctive mark is the always pubescent capsule. *D. virginica* is found in rich rocky woods, its leaves are much more cut than the others and the stem is always glaucous; while *D. laevigata* is close to *D. virginica*, it is a more delicate plant and is not glaucous. The *Gerardias* were found to be all parasitic, largely on grasses, *Andropogon sp.* being the

favorites and always preferred if within reach. The list of host plants observed is quite a large one, *Gerardia tenuifolia* was noted on sixteen different species. In *Gerardia Holmiana*, *G. purpurea* and *G. decemloba*, the corolla is spreading, while in *G. tenuifolia* it is slightly two-lobed. *G. purpurea* and *G. racemulosa* are very close, the long pedicels differentiate them from *G. Holmiana* and *G. decemloba.*

April 25, 1912. Fifteen members present. Mr. Bayard Long gave his observations on *Allium carinatum*, an introduction of recent years. Its first mention in text-books appears to be in the appendix to *Britton's Manual*, published in 1901 on the authority of N. E. Arnold, who collected it at Grenoble, Bucks County, Pa. When first reported it was feared that it might become as troublesome a weed as *Allium vineale* which it closely resembles. According to Mr. Long's observations it seems to grow only on banks, along roadsides and on the edges of woods and not in meadows as in the case of *A. vineale.* It blooms in August and is rather an attractive plant. Along the Edge Hill Road near Willow Grove and at Camp Hill, Ashbourne and several other localities it was found well established. Herbarium specimens of a number of interesting plants recently collected by Mr. Pretz, mostly from Lehigh County, Pa., were displayed; also a number of living plants collected by Mr. Long, showing how they appeared when just starting into growth in the spring.

May 23, 1912. Fourteen members present. Mr. W. E. Ridenour was elected a member of the Club. The Chair announced the death on May 4, last of Joel J. Carter at Peter's Creek, Pa.

Mr. Williamson spoke of a trip taken by him into southern Delaware on May 18 and 19. At Harrington an unusual *Azalea* was noted, like *A. nudiflora* but about twice the size, white tinged with pink, with a glandular tube and very sweet-scented, *Azalea viscosa* grew in the same locality but was not yet in flower. A few small plants of *Chionanthus* were noted, also *Juncoides bulbosum. Antennaria Parlinii* was abundant. A surprise was the finding of *Rubus alleghenicnsis* in this region. Along the railroad *Senecio tomentosus* was conspicuous. At

Millsboro, along the banks of the Indian River the following were noted: *Leucothoe racemosa*, *Viola primulaefolia*, very hairy, *Itea virginica*, *Carex exilis*, *Aralia spinosa*, *Smilax Walteri* in bloom and *Juncus militaris;* a large patch of *Yucca filamentasa* was observed but whether native or escaped from cultivation could not be determined. Mr. Long spoke of a recent trip to the region around Bangor, Pa. largely for the purpose of studying *Vaccinium* in flower. The species are very variable, in leaf characters as to the hairs and serrations, also in the size and shape of the corolla. It seemed difficult to find two bushes alike. The willows were in fine condition. At Mt. Bethel, *Dentaria diphylla* was noted in abundance, also *Waldsteinia* and *Polygala paucifolia; Carex pedunculata*, rare with us, in this region was locally abundant and in fine condition. Mr. Welsh described a spring trip to Northern New Jersey in the vicinity of Branchville and Culver's Lake. Among some of the species noted were *Cypripedium hirsutum*, *Caltha palustris*, *Trillium undulatum*, *Prunus pumila* and *Conopholis americana.*

September 26, 1912. Twenty-two members present. The Chair announced the death on August 18 of Benjamin Heritage, one of the founders of the Club, speaking of his life and interest in things botanical. Messrs. Lippincott and A. N. Leeds also testified to his character and unusual ability. The topic of the meeting being "Summer Notes," a number of those present contributed.

Local species of *Solidago* were displayed on the walls, in addition Mr. Van Pelt called attention to specimens of *Gymnadeniopsis integra* collected August 16, 1912, by Henry Fox, at Swain Station, Cape May County, New Jersey, and *Eryngium yuccifolium*, collected July 29, 1912, by Mr. Roper in the vicinity of Atco, New Jersey; both are new to the Club herbarum. Mr. Williamson had paid Lake Superior a visit in the vicinity of Sault Ste. Marie and Fort William; he also reported the collection in Cape May County, New Jersey, of *Bidens bidentoides* and *B. discoidea* as well as *Chenopodium Boscianum.*

Dr. Eckfeldt had paid a recent visit to the Nockamixon Cliffs on the Delaware, at which place he turned up *Aster amethystinus*

growing at the top, on the rocks bordering a woods facing south. At the same time another *Aster* was collected with flowers of a rosy pink, inflorescence much the same as *A. amethystinus*, but foliage that of *A. multiflorus*. Dr. Eckfeldt regarded *A. amethystinus* as a distinct species rather than a hybrid between *A. multiflorus* and *A. novæ-angliæ* as claimed by some; the other plant found would rather seem to be the hybrid. Dr. Harshberger exhibited a volume of illustrations of vegetation in Southern New Jersey, which was one of a number of volumes collected by him with a view to recording wild vegetation before disturbed by cultivation; many of the views were from original photographs.

Mr. B. H. Smith told of two trips taken with Prof. Sargent in the vicinity of Jamestown and Williamsburg, Virginia, between the York and James Rivers, with a view of discovering if possible the old botanist Clayton's habitat. Clayton had been a correspondent of Linnaeus, and from the records had evidently collected in this locality. It was not until the second trip that traces of Clayton's having lived in these parts were discovered. He apparently had served the County of Gloucester for a number of years as an officer of the court, but the county seat had been removed many years ago, the old court-house was in ruins, the surroundings a wilderness. A house was pointed out which tradition said was Clayton's, several magnolias and pawpaws were found, also *Hicoria villosa* and two species of the *glabra* type, one of which was probably Clayton's species. Mr. Smith showed specimens of the trees referred to, together with *Quercus Michauxii*, *Q. nigra* and the Live Oak *Q. virginiana*, the last named reaching its northern limit near this point. Mr. Lippincott commented upon the disappearance of *Nelumbo lutea* in the neighborhood of Woodstown, N. J. As soon as the plant gets very abundant in a locality it seems to disappear; whether this is due to overcrowding and thus a tendency to decay does not appear.

October 24, 1912. Nineteen members present. A minute on the death of Benjamin Heritage was received. Mr. Brown described a trip taken to Jamaica in the late winter of 1909–10,

displaying on the walls representatives of the principal plant families. The scarcity of herbaceous plants in the tropics was noticeable; woody ones predominate. Mr. Bassett exhibited a fine lot of *Dahlias* from his New Jersey nursery; the club giving him a vote of thanks for his generous gift of cut blooms to the members present.

November 21, 1912. Twelve members present. Mr. Welsh spoke of a trip to Lake Sunapee, N. H., describing the character of the vegetation of the region. Among the plants noted were *Polygonum amphibium, P. cuspidatum, Lobelia Dortmanna, Lysias orbiculata, Peramium ophioides, Peramium tessellatum, Corallorhiza multiflora, Blephariglottis psycodes, Cypripedium acaule, Dalibarda repens, Actaea alba, Sorbus americana, Viburnum alnifolium* and *Moneses uniflora.*

December 26, 1912. Annual meeting, twenty members present. The following were elected as officers of the Club to serve for the ensuing year: President, Edwin B. Bartram; Vice-President, Charles S. Williamson; Secretary, Lee Sowden; Treasurer, Arthur N. Leeds; Curator, S. S. Van Pelt; Associate Curator, Bayard Long. Mr. John A. Bornman, Glenolden, Pa., and Mr. Walter M. Benner, Telford, Pa., were elected active members, and Mr. Charles Varnum, Atco, N. J., a corresponding member.

Mr. Crawford presented the Club with a souvenir copy of a publication giving an account of the first outing of the Club on the Susquehanna hills and islands at York Furnace, Pa., in 1892. Dr. Harshberger presented the members with complimentary copies of his book on the "Botanists of Philadelphia and their work." Mr. Van Pelt had arranged an exhibit of some of the interesting additions to the herbarium during the year.

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club.

1913.

EDWIN B. BARTRAM, *President.*
CHARLES S. WILLIAMSON, *Vice-President.*
LEE SOWDEN, *Secretary.*
ARTHUR N. LEEDS, *Treasurer.*
S. S. VAN PELT, *Curator.*
BAYARD LONG, *Associate Curator.*

ACTIVE MEMBERS.

JAMES F. BAKER, 938 Broadway, Camden, N. J.....*1896
EDWIN B. BARTRAM, Wayne, Pa. 1906
GEORGE W. BASSETT, Hammonton, N. J..... 1904
WALTER M. BENNER, Telford, Pa. 1912
GEORGE M. BERINGER, 5th and Federal Sts., Camden, N. J..... Founder.
JOHN A. BORNEMAN, Glenolden, Pa. 1912
DR. AMOS P. BROWN, 20 E. Penn St., Germantown, Pa..... 1892
STEWARDSON BROWN, Academy of Natural Sciences, Phila. Pa. Founder.
JOSEPH CRAWFORD, 16 E. Steward Ave., Lansdowne, Pa..... Founder.
FRANK MILES DAY, Mt. Airy Philadelphia, Pa..... Founder.
RICHARD H. DAY, 419 N. 2nd St., Philadelphia, Pa..... Founder.
DR. JOHN W. ECKFELDT, 65th and Vine Sts., Philadelphia, Pa..... 1892
WILLIAM FINDLAY, 212 N. 8th St., Philadelphia, Pa..... 1908
DR. C. D. FRETZ, Sellersville, Pa..... 1892
BARTRAM W. GRIFFITHS, 4024 Green St., Philadelphia, Pa..... 1902
J. H. GROVE, New Egypt, N. J..... 1905
ALBERT C. GRUBER, 716 Haw Ave., Norristown, Pa..... 1910
DANIEL W. HAMM, Allentown, Pa. 1912
DR. JOHN W. HARSHBERGER, 4839 Walton Ave., Philadelphia, Pa... 1911

* Date indicates year of election to Club.

WILLIAM E. HAYDOCK, 4110 Parkside Ave., Philadelphia, Pa..... 1903
PROF. ZEPHANIAH HOPPER, 1925 N. 12th St., Philadelphia, Pa..... 1902
F. F. HUBER, Pennsburg, Pa. 1911
DR. A. ARTHUR JONES, 1810 Jefferson St., Philadelphia, Pa..... 1897
DR. IDA A. KELLER, Girls High School, Philadelphia, Pa..... 1892
REV. W. W. KISTLER, Pennsburg, Pa. 1911
PROF. W. A. KLINE, Ursinus College, Collegeville, Pa..... 1911
LOUIS C. KLOPP, 1301 SNYDER AVE., Philadelphia, Pa..... 1910
DR. HENRY KRAEMER, 145 N. 10th St., Philadelphia, Pa..... 1898
DR. HENRY A. LAESSLE, 59th and Market Sts., Philadelphia, Pa... 1894
DR. H. PEARCE LAKIN, Lansdale, Pa..... 1906
MRS. H. PEARCE LAKIN, Lansdale, Pa..... 1906
HENRY A. LANG, 4917 N. Camac St., Philadelphia, Pa..... 1901
CHARLES H. LA WALL, 507 S. 42nd St., Philadelphia, Pa..... 1896
ARTHUR N. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
MORRIS E. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
DR. T. MONTGOMERY LIGHTFOOT, 5935 Greene St., Germantown, Pa. 1892
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ALEXANDER MACELWEE, Fairmont, W. Va. 1892
DR. A. S. MARTIN, Norristown, Pa..... 1899
PROF. D. MORTFORD MELCHIOR, Girard College, Philadelphia, Pa... 1911
DR. A. W. MILLER, 400 N. 3rd St., Philadelphia, Pa..... Founder.
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JOHN E. OVERHOLTZER, Norristown, Pa..... 1892
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SILAS L. SCHUMO, 880 N. 22nd. St., Philadelphia, Pa..... 1897
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BENJAMIN H. SMITH, 4704 Chester Ave., Philadelphia, Pa..... 1906
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	Died.
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ISAAC BURK, Honorary.....	March 30, 1892
WILLIAM M. CANBY, Honorary.....	March 10, 1904
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BENJAMIN HERITAGE, Founder	August 19, 1912
ALBRECHT JAHN, Founder	February 6, 1905
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ISAAC C. MARTINDALE, Founder	January 3, 1893
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LOUIS SCHNEIDER, Active	August 14, 1901
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No. 6 1913

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PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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COREMA CONRADII, *TORREY*

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 6. PHILADELPHIA, PA. 1913

Corema Conradii *Torrey*

BY STEWARDSON BROWN

Few of our New Jersey plants have attracted more interest among botanists in general than the subject of the present paper. Although ranging in greater or less abundance along the Atlantic seaboard from Newfoundland, through Maine to Southeastern Massachusetts, with an isolated station in the Shawangunk Mountains, New York, it is here only considered at its most southern known locality, where first discovered, in that remarkable section of the Pine Barrens of Ocean and Burlington Counties, New Jersey, locally known as the "Plains."

My first acquaintance with *Corema* was made on a memorable trip, March 31, 1893, in company with Messrs. Witmer Stone, Amos P. Brown and Joseph Crawford. We, I believe, were the first botanical party to visit the plains from the West, starting from Woodmansie Station on the New Jersey Southern Railroad, and like other pioneers found difficulties to be overcome, our main one being to determine the correct road.

Any one who has had experience in the pines, knows the difficulty in telling roads from other areas of sand, especially when no vehicle has passed over any of the suspects during

some months; such was our dilemma when alighting at the burned platform and shed which served as a railroad station. The map indicated two roads, one tending somewhat north of east while the other was due east. Here we had two possible roads tending decidedly northeast and three apparently due east, the two lower of these were only wagon tracks of an ancient date, maybe not since the last huckleberry season; the other showed that a wagon had been over it maybe as recently as two months ago. As our road should go due east, and was indicated as a highway to the coast, we concluded the one showing the most recent use was it, but after two hours steady tramping, and no sign of the "plains," and with some abandoned houses which the map showed should be on the other road, we knew we were wrong. But it was better now to keep ahead than to turn back; for if our calculations were correct according to the map, in about two miles we would meet a north and south road, on which if we turned south we would soon reach our goal, and this proved correct. We were rewarded for our exertions by finding *Corema* in abundance, and in perfection of bloom, at a station much further to the west than ever previously recorded. On a visit to the same locality several years later, no trace of *Corema* was to be found where previously it had been so abundant, though there was plenty not far distant where we had not observed it before. From the manner in which it appears to vary in abundance from time to time, occasionally disappearing entirely where it had been abundant, and appearing at some station where it had not been known before, it would suggest that after a time it must die out, while the seed blown over this wind-swept waste is constantly starting new colonies, so that its actual stations through the plains are continually changing.

Dr. Witmer Stone, describing *Corema* in its home in New Jersey, says:* "It is an inhabitant of those desolate stretches of white sand barrens which cover the most elevated portion of the Pine Barren region, stretching away for some thirty square miles, for the most part devoid of trees higher than one's knees.

* Report N. J. State Museum, 1910, pp. 530, 531.

But trees there are in abundance, round boles of pitch-pine trunks, which send out prostrate branches, or short upright ones, bearing an abundance of cones; and scrub oaks of several species—*Q. ilicifolia* and *marilandica*—everywhere stunted. Here and there the Bearberry *Arctostaphylos* trails about over the coarse white sand and gravel. And then at favored spots are great round cushions of the *Corema*, one to three feet in diameter, the basal portion a tangle of brown stems and dead branches, but the surface of the mass, covered with fresh green leaves—little slender needles recalling those of some conifer—and at the top of each spray a blossom or fruit, according to the season; neither of them very conspicuous, although the purple anthers do stand out rather brightly when the plant is in full bloom."

In an account of a trip to the "Plains" by Mr. Herbert L. Coggins* is the following admirable picture of them in midsummer: "A singular region, hot, level and dry. We wade into the scrub scarce able to believe that it is over the top of a dwarf forest that we are gazing for miles. Its barrenness, except for the stunted vegetation, recalls vividly to mind long-forgotten descriptions of desert regions. The heat rising from the parched ground gives a blur of uncertainty to distant outlines, and we close our eyes involuntarily before the glare of the sun on the exposed gravel areas."

Such is the abiding-place of this most interesting plant in New Jersey, which is among the earliest of the spring bloomers, opening its flowers in late March or early April according to seasonal conditions. The staminate flowers in particular are quite showy with their tufts of red-purple filaments, capped by brown-purple anthers, in strong contrast with the abundant dark green foliage, the dead brown stamens persisting for quite a time after the flowering period. The pistillate flowers though less showy are yet quite striking with their abundance of red-purple styles, followed by the fruit, like little round balls about a sixteenth of an inch in diameter, which appear to ripen in early summer.

The history of its discovery, apparent disappearance and sub-

* Cassinia, 1902, p. 26.

sequent rediscovery is interesting, and I here quote in full that portion of an article by Mr. John H. Redfield.* Referring to its occurrence in New Jersey, he says:

"It is said to have been first discovered by Prof. Solomon W. Conrad as early as 1831 near Pemberton Mills about ten miles from Burlington, N. J., and a fragment so ticketed (with a ?) is in the herbarium of the Philadelphia Academy. Soon after Rafinesque collected it at Cedar Bridge, Monmouth County, about twenty-two miles southeast of Pemberton. This locality was visited about 1833 by Dr. Torrey, who published the first description of the plant under the name *Empetrum Conradii*, in Annals of N. Y. Lyceum of Nat. Hist., IV, 83. In April, 1869, in company with the late Charles F. Parker, I made some examination of the vicinity of Pemberton, and also visited Cedar Bridge in search of the plant. The encroachment of civilization near the former place discouraged search, but at Cedar Bridge, the localities which Dr. Torrey in his paper so carefully indicated, were readily identified. But no trace of the plant was seen either at these points or elsewhere during a search of some hours. Dr. Torrey described it as growing in a few patches 'in the pure white sand of that region.' These places as I now remember them were quite bare of vegetation at that early spring season, but the prevailing tree growth of all that region is a very stunted form of *Pinus rigida*. At the time of Rafinesque's and Torrey's visits, Cedar Bridge was an inn for the accommodation of the limited summer travel of that period by stage-coach between Philadelphia and Barnegat Bay. Now, alas! an occasional clam-wagon is the only visitant, and as I remember the house in 1869, it was as rough a hostelry as it has been my lot to encounter. I have some doubt whether Conrad's and Rafinesque's localities were not the same.

"Dr. Knieskern is said to have found the plant at other points in Monmouth County, but this has not been confirmed, nor is *Corema* enumerated in his Catalogue of the Plants of Monmouth and Ocean Counties, published in 1856. There is, however, a large tract of absolute wilderness lying between the

* Bull. Torr. Bot. Club, 1881, p. 97.

New Jersey Southern Railroad and Barnegat Bay which may reward exploration."

The plant was, so far as records show, completely lost in New Jersey from the time of the recorded discovery at Cedar Bridge by Dr. Torrey in 1833, for a period of fifty-three years, when in 1886 Mr. J. F. Merrill of Columbia College communicated to Dr. Britton its rediscovery in the barren plains west of Cedar Bridge, exactly where Dr. Redfield suggested in 1869 * that it might be found, when reporting to the Philadelphia Academy, the failure of Mr. Charles F. Parker and himself to rediscover it at the localities of Conrad and Torrey.

In 1887 Dr. Britton with Mess. Thomas Hogg and J. J. Northrup visited the spot, and on April 3, 1889, Dr. Britton, Mr. Redfield, Dr. Arthur Hollick and Dr. J. Bernard Brinton visited the same locality, and a quotation from Mr. Redfield's † second paper on the subject follows: "The locality is about two and a half miles due west from Cedar Bridge, and about ten miles west of the railroad station at Barnegat. It lies on both sides of the county line dividing Ocean and Burlington Counties. It is easiest reached from Barnegat by taking the straight road from that place to Cedar Bridge (about eight miles), then taking the straight road running west-northwest from Cedar Bridge towards Buddstown for about two and one-half miles to where the road is crossed by a north and south road, and following this for half or two-thirds of a mile south.

"The region is a most remarkable one, which cannot fail to impress every visitor with a sense of loneliness and sterility. It forms part of the water-shed, or divide, between the streams flowing into the Atlantic and those discharging into the Delaware River. Locally it is known as the 'West Plains,' but these so-called 'plains' are long undulating swells of sand, sometimes rising to a height commanding extensive views in every direction over a desert of sand so sterile that even the trees of *Pinus rigida*, which sparsely clothe it, can attain only to the height of three or four feet. No sign of human life is

* Proc. Acad. Nat. Sci., Phila., 1869, pp. 91, 92.

† Bull. Torr. Bot. Club, XVI, 1889, pp. 193–195.

visible and one could readily imagine himself in the midst of a vast wilderness. Its height above the ocean is between 150 and 200 feet according to the Geological Survey. The region is bisected by the north-and-south road I have mentioned, by the side of which the usual low matted patches of *Corema* appear. But on leaving the road to examine the extent of its distribution we became amazed at the expanse of the territory more or less covered by it. We followed over the rising swells of ground already alluded to, both to the east and west of the road, to the extent of at least half a mile each way, and for a like distance in the opposite direction without entirely losing sight of *Corema*, and we probably did not reach the limits. To say that there are hundreds of acres of it is a statement which my companions thought to be far short of the truth. In some places the patches were separated by intervals of some rods, but often scores of them were seen at once, and in many places they became confluent in large masses, reminding me of the appearance of the plant at Plymouth, Mass. Besides the thick, scattered, stunted pines, little shrubbery was seen, other than occasionally very small specimens of *Quercus ilicifolia*, but the sandy spaces were often partially covered with *Arctostaphylos Uva-ursi*, and the whole region reminded one of the downs of the interior of Nantucket, where the *Arctostaphylos* is so very abundant, occasional carpets of *Pyxidanthera* were near, but rarely with the *Corema*.

"Though our visit was made before April had expired, the unusually advanced season had carried *Corema* beyond its flowering stage, and its stamens were mostly withered though not fallen. Staminate and pistillate plants seemed equally abundant.

"When Mr. Merrill first discovered this locality it was, I believe, unscathed by fire, but at the time of Dr. Britton's first visit the region had been burned over, so far as it was possible to burn so sparse a growth, and the low pines had been singed and mostly killed. Now among the blackened trunks fresh sprouts of these pines are appearing. But what most excited our surprise was to see myriads of young seedling plants of *Corema* springing out of the sand in the intervals between the patches, and it would seem as if the seeds, carried by the winds, had availed themselves of every spot of bare sand, there to lodge and

germinate. None of these seedlings were more than two years old, many not more than one.

"In illustration of the apparently capricious manner in which the plant appears, I may mention that on our return to Barnegat we saw two or three patches of it on the south side of the road about three miles west of Barnegat within half a yard of the wheel track. Search for more of it in this vicinity was unsuccessful, so also was a re-examination of the original locality near the old Western Hotel at Cedar Bridge."

Not until 1899 was *Corema* known in New Jersey outside of the "West Plains," except at the one station three miles from Barnegat recorded by Mr. Redfield.* On July 3 of that year, however, Messrs. C. F. Saunders and Willard N. Clute, on a wagon trip from Tuckerton to Atsion, crossing the lower or "East Plains," collected it west of Munyon Field in environment exactly similar to that found on the "West Plains," and also sparingly in a pine woods on the west branch of Wading River, at least four miles from the "Plains."†

In June, 1901, Dr. Witmer Stone, accompanied by Messrs. H. L. Coggins and J. A. G. Rehn, on a wagon trip from Medford across the pines, found the plant abundant at Mr. Saunder's locality west of Munyon Field, and a year later Dr. Stone, on a tramp from Cedar Grove to Chatsworth, in company with Mr. Rehn, found it just east of Cedar Grove, in sight of the houses.‡

Dr. Stone also records § finding on May 18, 1911, an isolated colony of *Corema* in a pine woods at Englewood, on West Creek, three miles from the town of West Creek, another locality outside of the "Plains," and probably its most southeasterly station.

The following is a summary of the records of *Corema* in New Jersey: Pemberton Mills, twelve miles from Burlington, Monmouth county; Cedar Bridge; three miles west of Cedar Bridge; four miles east of Woodmansie; six miles east of Woodmansie; three miles west of Barnegat; between Allen's Bridge (High Bridge) and Martha; "East Plains" near Munyon Field; three miles northwest of West Creek.

* L. c.

† Proc. Acad. Nat. Sci., Phila., 1900, p. 544.

‡ L. c., p. 535.

§ Bartonia, III, p. 26.

Some Noteworthy Plants of Bear Swamp

BY EDWIN B. BARTRAM

Several miles northeast of Trenton the New York division of the Pennsylvania Railroad bisects a locality known as "Bear Swamp." In traveling between Philadelphia and New York I have regularly observed this little area of marsh and swamp from the train window, but the opportunity to make a more intimate study of the flora did not offer until last season.

During the winter months it presents the usual range of sombre greys and primeval browns. Early in April, however, before the surrounding country gives any evidence of the impending change, parts of the marsh seem fairly to glow with the warm sunlight reflected from the staminate catkins of *Salix discolor*. These fragile but hardy clusters appear to radiate the slanting rays of the late afternoon sun until they give one the impression of countless little yellow flames against the sombre background of dead and dormant vegetation. In July and August the immense pink and white flowers of the *Hibiscus Moscheutos* fill portions of the swamp with a wealth of color that not infrequently draws exclamations of surprise and admiration from otherwise sedate travelers. Again in September large areas of the open marsh are covered with masses of *Bidens trichosperma* that in spots grows to a height of six feet or more. It would indeed be hard to imagine a more satisfying landscape effect than this luxuriant mass of golden-yellow blooms.

Passing from the broader and more familiar features to a more detailed description of the locality, we may say that it is about two miles long and almost half as broad, except at the upper or north end, where it is bounded by the Asanpink Creek. The central portion, comprising at least one-half of the total area, is an open marsh covered in places with extensive colonies of cat-tails, but also showing other characteristic features that will be

referred to later on. This open portion is practically surrounded by almost impenetrable thickets which in places are backed by patches of woodland. While the neighboring country is closely cultivated, this swamp shows few if any evidences of decided change. It is frequented by huckleberry pickers during the summer and by a few gunners in the fall, but so far it seems happily to have escaped the civilizing influences that follow in the wake of the axe and the under-drain. We are therefore reasonably warranted in assuming that it is essentially the same to-day as it was before the region was settled.

For convenience we will separate the plants of the central portion or marsh from those of the bordering shrubbery thicket. Both groups are plainly hydrophytic in their elements and relationships, as might be inferred from the locality. The following lists are not intended to be complete and only aim to include some of the more interesting species collected during the season as a basis for the discussion to follow.

The greater portion of the marsh is covered with a dense mixed growth of *Typha angustifolia* and *Typha latifolia*, while the remainder is characterized by a heavy black soil, numerous shallow pools and a scattering growth of *Clethra alnifolia*, *Betula populifolia*, *Alnus rugosa* and *Vaccinium corymbosum*. A noteworthy feature is a sphagnum strip of varying width between the marsh and the bordering thickets. As a number of the more interesting species were confined entirely to this sphagnum border, I have marked these with an asterisk to distinguish them from the typical marsh species in the following list:

Woodwardia virginica (L) Sm.
**Lycopodium inundatum* (L.) *var. Bigelovii* Tuckerm.
**Lycopodium alopecuroides* L.
**Paspalum plenipilum* Nash.
**Paspalum pubescens* Muhl.
Typha angustifolia L.
Typha latifolia L.
Panicum microcarpon Ell.
**Panicum lucidum* Ashe.
Panicum mattamuskeetense Ashe.
Panicum philadelphicum Bernh.

Panicum verrucosum Muhl.
**Panicum scoparium* Lam.
**Glyceria canadensis* (Michx.) Trin.
**Glyceria obtusa* (Muhl) Trin.
**Calamagrostis cinnoides* (Muhl.) Barton.
Scirpus cyperinus (L.) Kunth.
Scirpus cyperinus (L.) Kunth var. *Andrewsii* Fernald.
Dulichium arundinaceum (L.) Britton.
**Carex hormathodes* Fernald.
**Carex scirpoides* Schkuhr.
**Carex scirpoides* Schkuhr. var. *capillacea* (Bailey) Fernald.
**Carex subulata* Michx.
**Carex tribuloides* Wahlenb.
**Carex bullata* Schkuhr. var. *Greenii* (Boeckel.) Fernald.
**Carex stellulata* Good. var. *angustata* Carey.
Juncus effusus L. var. *solutus* Fernald and Wiegand.
**Xyris flexuosa* Muhl.
**Zygadenus leimanthoides* Gray.
**Lilium superbum* L.
**Habenaria blephariglottis* (Wild.) Torr.
**Habenaria peramoena* Gray.
Salix discolor Muhl.
Peltandra virginica (L.) Kunth.
Betula populifolia Marsh.
Spiraea tomentosa L.
Castalia odorata (Ait) Woodville and Wood.
Linum striatum Walt.
**Polygala sanguinea* L.
**Polygala Nuttallii* T. and G.
**Viola Brittoniana* Pollard.
**Viola lanceolata* L.
Hibiscus Moscheutos L.
Ludvigia palustris (L.) Ell.
Ludvigia alternifolia L.
Ludvigia sphaerocarpa Ell.
**Epilobium densum* Raf.
Vaccinium corymbosum L.
**Lysimachia terrestris* (L.) B. and P.

**Lysimachia producta* (Gray.) Fernald.
Asclepias incarnata L. var. *pulchra* (Ehrh.) Pers.
**Bartonia paniculata* (Michx.) Robinson.
Linaria canadensis L.
**Gerardia purpurea* L.
**Galium Claytoni* Michx.
**Galium tinctorium* L.
**Lobelia Nuttallii* R. and S.
**Eupatorium verbenaefolium* Michx.
Eupatorium perfoliatum L.
Solidago rugosa Mill.
**Solidago neglecta* T. and G.
Solidago graminifolia (L.) Salisb. var. *Nuttallii* (Greene.) Fernald.
**Solidago tenuifolia* Pursh.
**Aster radula* Ait.
Aster nova-belgii L.
Aster salicifolius Ait.
Bidens trichosperma (Michx.) Britton.
Bidens connata L. var. *anomala* Farwell.*

A brief reference to some of the above records that are of more than ordinary interest may not be inappropriate.

Panicum scoparium Lam. is one of the plainly marked species characterized by a velvety pubescence throughout that we meet with commonly along the coast and occasionally in the Delaware Valley as far north as Camden. This locality extends the range some 30 or 40 miles further north.

Carex stellulata Good. var. *angustata* Carey has not been recorded south of Connecticut before, so it is a distinct addition to the New Jersey flora. This species is very sparsely represented in our local range, and this definite variety adds quite an interesting element to the continually expanding list of New Jersey plants.

Zygadenus leimanthoides Gray is a plant of very local distribution and is always an interesting find. This locality increases the number of stations in New Jersey to about ten.

* Rhodora, No. 172, see footnote p. 76.

Epilobium densum Raf. represents one of the waifs from the north that has been able to hold its own in competition with the pressure of vegetation from the south and west. The species is typically Alleghenian, and is one of the conspicuous plants of boggy meadows in the mountains and more northerly districts. Its range is given south to Delaware, but we certainly do not recognize it as a familiar plant within a radius of 30 or 40 miles of Philadelphia. Its occurrence here along with typical coastal plain and pine-barren types seems rather remarkable.

Bartonia paniculata (Michx.) Robinson has been recorded quite generally from the pine barrens, but this locality extends the State range some distance to the north.

Solidago tenuifolia Pursh. seems quite out of place here in the Delaware Valley drainage system, but this effect is offset in a measure by such associates as *Viola Brittoniana*, *Hibiscus Moscheutos*, *Panicum scoparium*, *Bartonia paniculata*, etc., all of which are characteristic plants of the coastal marshes. The association suggests that Raritan Bay may have at some previous time covered portions of the State between Perth Amboy and Trenton, thus extending the influence of the ocean some distance to the west of its present limits.

The shrubby border is not without its interesting features as the accompanying list will indicate:

Woodwardia areolata (L.) Moore.
Salix discolor Muhl.
Salix cordata Muhl.
Salix sericea Marsh.
Luzula campestris (L.) D. C. var. *multiflora* (Ehrh.) Celak.
Smilax glauca Walt.
Betula populifolia Marsh.
Alnus rugosa (Du Roi.) Spreng.
Quercus ilicifolia Wang.
Magnolia virginica L.
Itea virginica L.
Vitis Labrusca L.
Rhus vernix L.
Liquidambar styraciflua L.
Ilex verticillata (L.) Gray var. *padifolia* (Willd.) T. and G.

Nemopanthus mucronata L.
Cornus ammomum Mill.
Clethra alnifolia L.
Lyonia mariana (L.) D. Don.
Lyonia ligustrina (L.) D. C.
Gaylussacia frondosa (L.) T. and G.
Vaccinium corymbosum L.
Vaccinium atrococcum (Gray.) Heller.
Vaccinium virgatum Ait.
Rhododendron viscosum (L.) Torr.
Rhododendron viscosum (L.) Torr. var. *glaucum* (Mich.) Gray.
Cephalanthus occidentalis L.
Cuscuta arvensis Beyrich.
Cuscuta compacta Juss.
Viburnum cassinoides L.
Viburnum scabrellum (T. & G.) Chapm.
Viburnum dentatum L.
Aster umbellatus Mill.

There are probably few if any other localities where one will find *Nemopanthus mucronata* and *Salix discolor* growing side by side with *Itea virginica* and *Liquidambar styraciflua*. Around the outskirts of the swamp where the border shades off into the more open sandy country we find *Asclepias variegata* L., a species questionably recorded in Stone's Plants of Southern New Jersey; *Aster concolor* L.; *Lespedeza angustifolia* (Pursh.) Ell., and *Lespedeza hirta* (L.) Hornem. var. *oblongifolia* Britton. These are all comparatively rare plants in New Jersey. The last mentioned variety has been known from the pine barrens exclusively heretofore. There is a strong probability that *Lespedeza hirta* var. *oblongifolia* is a hybrid between *Lespedeza hirta* and *L. angustifolia* from the fact that here as elsewhere it is found closely associated with both species, and furthermore has definite characters in common with both.

The above facts seem to acquire importance on account of the plurality of typical species of both the Alleghenian and Carolinian zones that are represented in this restricted area. At the first glance we appear to have a peculiar assembly of species to deal with; but if we stop for a moment to analyze some of the

factors of range and distribution, a variety of suggestive theories present themselves. The imagination must play an important part in solving problems of this character, as we are dealing to a great extent in speculations rather than tangible facts that are capable of actual demonstration. If the known range of a group of plants can be used in connection with existing or accepted geographical and geological facts so as to offer a reasonable explanation for their occurrence in certain localities, we are justified in accepting the deductions until they have been disproved. By this method we are at least assured of a basis to work from, even though the theory may subsequently be modified or discarded in the light of more complete knowledge.

In New Jersey the Fall line or the northwestern edge of the coastal plain trends in a northeasterly direction from Trenton to the mouth of the Raritan river near Perth Amboy. A majority of the species recorded from Bear Swamp is quite naturally representative of the "Middle District." *

A glance at the map at once suggests lines of communication by way of the creeks and brooks that take their sources near the edge of the Pine Barrens and flow in a northerly direction toward the fall line where they are diverted eastward into the Raritan River or westward into the Delaware River as is the case with Asanpink Creek. These tea-colored streams are noteworthy from the fact that they drain a considerable region adjacent to the northern edge of the Pine Barrens. Their wide swampy and boggy margins offer a tempting highway for the species that find such a habitat congenial. Our botanical knowledge of the country between Princeton Junction and the mouth of the Raritan River is quite limited, but we know that many of the features of Bear Swamp are represented across this belt.

We have also to consider whether the area of low country north of the Pine Barrens may not have been partly submerged by an arm of the ocean that is now restricted to Raritan Bay. This would help to explain the unusual range of the species noted above in connection with *Solidago tenuifolia* to which we

* Plants of Southern New Jersey, p. 57.

might make such suggestive additions as *Ludvigia sphaerocarpa* Ell. and *Andropogon glomeratus* (Walt.) B. S. P.

In attempting to account for the presence of the group of plants showing northern affinities, we are forced to approach the subject from a somewhat different angle. Such species as *Aster radula*, *Carex stellulata* var. *angustata*, *Epilobium densum*, *Betula populifolia*, *Spiraea tomentosa*, *Nemopanthus mucronata*, etc., must be considered in the aggregate as indicative of a broad problem of distribution rather than to casual introduction by some unknown agency.

During the glacial epoch the edge of the ice sheet in New Jersey was only a short distance north of the present limit of the coastal plain which at that time presented many of the physical characteristics of bog and marsh areas that we recognize to-day.† As vegetation was forced southward in advance of the ice these localities would have been occupied by many such species as we find here now. With the retreat of the ice and the incidental change to warmer climatic conditions an influx of vegetation from the south and west precipitated a struggle for possession of the region. Some types no doubt succumbed quickly and were exterminated while others were smothered out progressively from time to time. The characteristic species of higher latitudes that we find here now only exist by reason of some inherent or acquired qualities of resistance and vitality that enabled them to successfully compete with the changed conditions. If we consider these scattered groups as remnants of a flora that covered the coastal plain of New Jersey outside of the Pine Barrens during the glacial epoch, we must conclude that this region served as one of the principal sources to revegetate the New England States in the wake of the retreating glacier. The wide distribution in New England of such common species as *Salix discolor*, *Betula populifolia*, *Populus tremuloides*, *Spiraea tomentosa*, etc., indicates the same hardy qualities that our New Jersey plants must have possessed to enable them to resist extermination. Contributing causes affecting distribution, such as oscillations of level, chemistry of soils, etc.,

† Dana's Manual of Geology, 4th ed., p. 945.

would obviously require too extended a discussion for the limits of the present article.

The Bear Swamp is only one of innumerable localities in the coastal plain of New Jersey where a truce seems to have been established in the conflict between contrasting aggregates of species. In its general features it is typical of the belt along the northwestern border of the New Jersey coastal plain, so we may summarize our ideas with regard to the derivation of its plant life somewhat as follows: An obvious connection with the flora of the more southerly districts adjacent to the Pine Barrens by way of the streams draining to the north. A less clear but suggestive connection with the coastal strip by means of a shallow arm of the ocean that has since been restricted to the present Raritan Bay. A definite affinity with the flora of the glaciated country to the north if the plant associations are considered as remnants of a vegetation that was forced down into the coastal plain during the glacial epoch and subsequently obliged to struggle against modified climatic conditions and a new type of vegetation incident to the period of the Champlain subsidence. During this period the middle district of New Jersey must have been a strong competitor of the regions west and south in revegetating New England and eastern New York, as the country was uncovered by the melting ice-cap.

Notes on the Flora of Upper Montgomery Co.

BY JOSEPH R. MUMBAUER

In looking up the records of the Flora of Eastern Pennsylvania I find that a very limited number of plants have been reported from the upper half of Montgomery Co. Besides those mentioned in Porter's Flora of Pennsylvania, Mr. Van Pelt and a few other members of the Philadelphia Botanical Club have made some very interesting but few collections.

This part of the county is not only decidedly rich in flora, but has besides some very rare and interesting plants.

In company with F. F. Huber, Rev. W. U. Kistler and Prof. Wm. A. Kline, of Collegeville, and many times alone, the writer has within the last few years covered nearly every section of the upper half of the county collecting specimens. Not including grasses, sedges and trees, nearly 1200 different specimens have thus far been collected, of which 500 have been sent into the Club's Herbarium.

Including grasses, sedges and trees, the writer is confident that several hundred more specimens could easily be collected; this work will however be taken up during the coming season. Of the more rare and interesting plants collected and not reported before from this section of the county are :

Blephariglottis grandiflora, Zieglersville, June, 1912.
Samolus floribunda, Zieglersville, July 4, 1912.
Kuhnia eupatorioides, Collegeville, Aug., 1909.
Cypripedium hirsutum, Green Lane, June, 1909.
Perularia flava, Pleasant Run, May 31, 1907.
Aplectrum spicatum, Pleasant Run, May, 1907.
Sarracenia purpurea, Pleasant Run, May, 1910.
Dodecatheon Meadia, Pleasant Run, May, 1907.
Corallorhiza Wisteriana, McClean's Station, Perkiomen R. R.
Peltandra virginica, McClean's Station, Perkiomen R. R.

Bidens involucrata, Pennsburg, July, 1905.
Woodsia ilvensis, East Greenville, June, 1912.
Asplenium angustifolium, Zieglersville, July, 1912.
Aspidium Goldianum, Zieglersville, July, 1912.
Aspidium spinulosum, Perkiomenville, June 19, 1912.
Chamaelirium luteum, Green Lane, June, 1911.
Eriophorum gracile, Sassamansville, May, 1910.
Melanthium latifolium, Green Lane, July, 1909.
Aletris farinosa, Telford, June, 1912.
Vagnera stellata, Pennsburg, 1909.
Trillium cernuum, Zieglersville, May, 1912.
Allionia nyctaginea, Railroad above Oaks Station.
Lychnis alba, Pennsburg, May, 1908.
Castalia odorata, East Greenville, June, 1907.
Atragene americana, Green Lane, May, 1913.
Batrachium trichophyllum, East Greenville, July, 1910.
Cheilanthes lanosa, Red Hill and Sumneytown.
Tulipa sylvestris, Pennsburg, June, 1909.
Arisaema dracontium, East Greenville, June, 1910.
Smilax hispida, Green Lane, July, 1912.
Iris prismatica, Telford.

General Notes

During the year 5138 sheets were mounted and added to the Club Herbarium, the largest contributors being Dr. C. D. Fretz, Harold W. Pretz, Bayard Long, Francis W. Pennell and Witmer Stone.—S. S. Van Pelt.

Salvia verticillata at Sellersville, Pa.—On June 24, 1913, when botanizing with Prof. W. Reiff Nauman of Sellersville, another *Salvia*, *S. verticillata*, not recorded for the region, was found in a field on the Wert tract, east of Sellersville, Pa. The plant however was a rather meagre one, having only about three or four stalks, each in fairly good flowering condition. Further search in the vicinity disclosed in a field of timothy and clover another large clump of the plant containing upwards of forty stalks, indicating that it must have been established there for some time.—Walter M. Benner.

Salvia sylvestris, near Penllyn, Pa.—On June 30, 1912, in company with Frank Strohm of Telford, and Harry Stout, an engineer on the North Penn Branch of the Reading Railroad, a visit was made to Penllyn cut a short distance south of Penllyn Station, to examine an unusual plant noticed there by Mr. Stout in his trips up and down the road. Upon examination the species proved to be *Salvia sylvestris*, a native of Central Europe. On June 20, 1913, another visit was made to the locality in order to obtain more herbarium material. At this time the plant seemed fairly well established, four clumps being observed which contained at least fifty flowering stalks. The establishing of the plant at this locality appears to be explained by the fact that several years previous the railroad company had planted alfalfa on the sides of the cut to check the constant washing and that the seed then sown contained that of the *Salvia*. Among other European weed plants collected at the

same locality were *Centaurea Jacea*, *Silene vulgaris*, and *Lychnis alba*.—Walter M. Benner.

Some Additions to the Flora of New Jersey—

Polygala ramosa Elliott.

Last August Miss May A. Brown, of Philadelphia, brought me a number of specimens of wild flowers for identification, among which was a *Polygala* that was new to me, and which proved to be a *P. ramosa* Ell., a new plant for New Jersey. Later in the month, in company with Messrs. Stewardson Brown and Witmer Stone, I visited the locality and we had the pleasure of collecting specimens of it, some of which are now in the Club Herbarium. This is another of those rare finds to be credited to the bogs about one mile west of Bennett's Station, N. J., and known popularly to many of the Club members as the *Gymnadeniopsis nivea* bogs. In the same locality I also found an abundance of *Psilocarya nitens* (Vall.) Wood. and *Paspalum dissectum* L., neither one of which I had previously collected north of West Cape May, N. J.

Adopogon dandelion Kuntze.

The plant long known to me as *Adopogon virginicum*, and as such placed on record in "Plants of Southern New Jersey," proves to be the above. Some plants collected May 18, 1913, showed the tuberous roots characteristic of this species, and caused me to suspect that my former identification had not been correct, so I sent specimens to Mr. Bayard Long, who also agreed that they were good *A. dandelion*. This is, I think, a new plant for New Jersey, and marks an important range extension.

Carex Leavenworthii Dewey.

A number of plants collected in 1910 near Cape May, N. J., were doubtfully referred to this species. I have been recently informed by Mr. Witmer Stone that there is now no doubt of the identification, and that this is also a new plant for the State.—O. H. Brown.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1913

January 23, 1913. Eight members present. Mr. Brown spoke on the Flora of the Bermudas which comprises about 200 native species, a majority being identical with those found in the southeastern United States and the Bahamas. Fourteen endemic species are known to exist of which the closest relatives are found in southern Florida or the West Indies, with two notable exceptions, namely, *Sisyrinchium bermudianum*, most nearly related to a Mexican species and *Erigeron Darrellianus*, with its nearest relative in Guatemala. Mr. Long noted the finding of *Quercus nigra* near Bennett Station, Cape May County, N. J. This extension northward from Central Delaware is an interesting and logical one and adds another species to the Coastal Plain plants finding their northern limit in the Cape May peninsula. Several plants not commonly recognized as elements of our local flora were discussed. *Juncoides campestre* is represented with us by three well-marked forms: *bulbosum*, not previously known north of Virginia and Tennessee, has been found in some half-dozen localities on the Serpentine Area of southeastern Pennsylvania and on the dry sands of southern New Jersey; *echinatum*, not known north of the District of Columbia, is our commonest widely-distributed form; *multiflorum*, a northern plant, extends sparingly into our area; *Juncus dichotomus platyphyllus*, probably a good species and showing a marked difference in range from *Juncus dichotomus*, occurs at numerous localities in the lower Piedmont and Coastal Plain, with apparently the same distribution in our area; *Agrostis antecedens*, a well-marked species long confused with *A. hyemalis*, was noted as occurring at numerous places and *Carex incomperta* has been found rarely at scattered stations in the local territory.

February 27, 1913. Ten members present. Mr. Van Pelt

spoke of a number of plants mounted from the 1912 collections of Mr. C. C. Bachman from Lehigh County, Pa., which were displayed on the wall, the uniformly excellent condition of the specimens was noteworthy. Remarkable leaf-variation in *Ilex monticola* was well illustrated by a number of good sheets. An interesting Carex, *C. incomperta*, was collected, growing on ledges of rocks.

March 27, 1913. Eleven members present. Mr. Williamson described a trip taken during the summer of 1912 to the north shore of Lake Superior, with Fort William, Ontario, as the objective point, the more interesting species being illustrated with mounted specimens on the wall. Stops were made at several points enroute where collections were made. At Mackinac Island he collected *Limnorchis hudsoniensis* and *Zygadenus elegans*; at Sault Ste Marie, *Washingtonia divaricata*, *Carex aurea* and *Cornus Baileyi*. In the region around Fort William, 432 species were collected including at Mt. McKae, *Matricaria matricarioides* forming mats, *Campanula uliginosa*, *Hippurus vulgaris*, *Beckmannia erucaeformis*, *Anemone canadensis*, *Gentiana rubicaulis*, *Parnassia palustris*, *Erigeron acris* and *Mertensia paniculata*; *Petasites palmata* was everywhere common in damp woods. On the loose talus of Mt. McKae was collected *Saxifraga Aizoon*, *Draba arabisans*, *Dryopteris fragrans*, *Viburnum pauciflorum*, and *Rubacer parviflorum*; on exposed rocks, *Cryptogramma Stelleri*; in loose rocky soil, *Capnodes aurea*, *Ranunculus Macounii*, *Arabis glabra*, *Artemisia longifolia* and *Xylostium oblongiflorum*. The only plant noted on top of Mt. McKae not collected elsewhere was *Sorbus sambucifolius*; in wet places were *Streptopus longipes*, *Agoseris glauca* and *Hypericum majus*. West of Port Arthur, along the Current River were collected *Pyrola minor*, *Cornus canadensis*, *Lonicera involucrata*, *Allium sibericum* forming a large patch, *Lobelia Kalmii*, *Aster major*, *Erigeron hyssopifolius*, *Tofieldia glutinosa*, *Scirpus hudsonianus*, *Potentilla strigosa*, *Scirpus pauciflorus*, and *Filix montana*. At Mission Pond, a small lake in the woods, were found *Lysiella obtusata*, *Moneses uniflora*, and *Scheuchzeria palustris*. At Squaw Bay, *Lysias orbiculata*, *Peramium tessellatum*, *Pyrola asarifolia*, and *Limnorchis hyperborea*. At

Kamanistiqua, *Viola arenaria*, *Amelanchier sanguinea*, *Comandra Richardsonianus*, *Lonicera glaucescens*, *Tetragonanthus deflexus*, *Euphorbia glyptosperma*, and *Cynoglossum boreale*. At Silver Islet, *Xylosteum caeruleum*, *Empetrum nigrum*, *Listera cordata* and *L. auriculata*, the latter apparently growing only under *Alnus incana*, *Limnorchis dilatata*, *Rubus arcticus* and *Triglochin maritimum*. At Isle Royale 59 species were collected, including *Primula farinosa americana*, *Castilleja acuminata*, *Sagina nodosa*, *Comandra livida*, *Gyrostachys stricta*, *Viola arenaria*, *Arabis Drummondii*, *Lysias Hookeriana*, *Vaccinium uliginosum*, *Pinguicula vulgaris*, *Selaginella selaginoides*, *Saxifraga tricuspidata*, *Aster ptarmicoides*, *Cryptogramma acrostichoides*, *Nabalus ramosus*, *Potentilla tridentata*, and *Juniperus Sabina*.

April 23, 1913. Thirteen members present. Francis W. Pennell spoke of his work on *Gerardia* and its allies in the Atlantic Coastal Plain, his observations being based largely on material collected on a trip from the end of July to October 20 of the past year. The farthest point reached was in Louisiana, and collections were made at various intervening points. The talk was illustrated by specimens on the wall, the range of the species being indicated by maps. The genus *Gerardia* as constituted in the text-books has been divided into the following genera under which the various species were described: *Macranthera* has but one species in the Coastal Plain, a handsome plant with brilliant orange flowers, growing in swampy ground and attaining a height of 6 to 10 feet; *Afzelia* has but two species; *Aureolaria* has many inland forms in the Piedmont, but only six in the Coastal Plain; *Agalinus* is a genus essentially of the Coastal Plain, of the twenty-one or twenty-two species, seventeen are restricted to this region. The species of the several genera were considered in detail, with the characters separating each.

May 22, 1913. Nine members present. W. Reiff Nauman, Sellersville, Pa., was elected to membership. Mr. Williamson spoke of some plants recently collected by him at Wilmington, N. C., illustrating his remarks with specimens on the wall. Mr. Long gave some notes on spring trips. In a woods one and a

half miles southwest of Merchantville he had collected *Viola pubescens*, a rare species from New Jersey; also an abundance of *Hepatica*, *Circaea lutetiana*, *Cardamine arenicola*, *Syndesmon*, *Viola hirsutula*, *Panax quinquefolia*, *Polycodium* and *Phegopteris hexagonoptera*. In another New Jersey locality near Haddonfield he observed *Sanguinaria* and *Podophyllum* in abundance; also *Juncoides bulbosum*. Interesting collections were made on the red shale in the southern end of Lehigh county, Pa. *Silene caroliniana* was frequent on the hillsides, and considered a common plant in that region, as was also *Carex umbellata adita*. At Zionsville, *Polygonatum biflorum* was noted, as also *Carex nigro-marginata* and *C. bromoides*. In the Powder Valley were *Taraxacum erythrospermum* appearing as a native plant, *Carex communis*, *Phegopteris Dryopteris*, *Cornus circinata* and *Viola rostrata*. At Corning there was a great abundance of Antennaria. All forms which might possibly occur in this region appeared to be represented; the species, however, were most confusing, and included *A. neglecta*, *A. neodioica*, all forms of *A. plantaginifolia*, *A. fallax* and *A. Parlinii*, and numerous intermediates; intermediates between *A. occidentalis* and *A. Parlinii*, but poor *A. occidentalis*.

September 25, 1913. Twelve members present. Mr. Stone recorded the finding of two interesting plants during the summer in the bogs near Bennett, Cape May County, N. J.: *Polygala ramosa*, new for the State, not having been previously recorded north of central Delaware, and *Psilocarya nitens*, abundant on the desiccated borders of the ponds. *Elephantopus carolinianus* was growing on the southern bank of Old Man's Creek near Swedesboro, New Jersey. Mr. Welsh noted finding *Hydrastis canadensis*, April last, along the Neshaminy Creek near Rushland, Pa. He also described a trip taken during August to Mt. Katadin, Maine, noting the plants found, *Diapensia* being in great quantity on the top of the mountain. The mountain ash in full fruit was very beautiful, but on the whole the flora was to him disappointing. Mr. Nauman noted some new or unusual plants for Bucks County, Pa. At Rockhill, *Menyanthes trifoliata*; at Bristol, along the railroad, two western plants, *Euphorbia helioscopia*, new to the region, and *Allionia nyctaginea*. Mr. Ben-

ner reported finding in the extreme southern part of Bucks County, *Fragaria vesca* and *F. vesca alba.* Some of the recently mounted plants exhibited on the wall were from the Bucks County herbarium of Dr. Fretz, which it was announced had been presented by him to the Club. The thanks of the Club were voted Dr. Fretz for his gift. Mr. Lippincott recorded the present abundance of *Nelumbium luteum* in Old Man's Creek near Swedesboro, N. J. The death of Prof. Hopper, long a member of the Club, was noted as having occurred on July 21.

October 23, 1913. Fourteen members present. Mr. Long spoke of some of his botanical experiences in New England during the past summer in company with Prof. Fernald. Near Hoosic Tunnel, a serpentine outcrop, more barren than those of Pennsylvania, was visited for the first time by any botanists. Much of interest was noted, the tops of the hills being covered with white pine. Among the most interesting finds were *Arenaria macrophylla, Selaginella rupestris* and *Panicum xanthophysum.* Special attention was paid to the flora of the Coastal Plain as found in Plymouth County, Mass., the small ponds in which the region abounds furnishing rich collecting on their shores as well as in the ponds themselves. An interesting comparison was made in the relative abundance or rarity of our New Jersey plants. Forms, such as the pines and *Chrysopsis falcata,* most characteristic with us, were here wanting, while the extreme abundance and luxuriance of such species as *Sabbatia dodecandra* and *Coreopsis rosea,* with us rather rare, was of extreme interest. A very full collection of more than 500 species was made on Block Island, which will form a satisfactory basis for a generalization of the island flora.

November 20, 1913. Twelve members present. Mr. Long called attention to a specimen of *Cynthia dandelion,* a new species for New Jersey, collected near Cape May by Mr. O. H. Brown, and also spoke of the occurrence of *Aster multiflorus* in the coastal strip of southern New Jersey where it is one of the characteristic plants, flowering in October. Mr. B. H. Smith showed specimens of *Malus fragrans* and *M. coronaria* with specimens of a possible third species.

December 31, 1913. Nineteen members and three visitors present. The following were elected as officers for the ensuing year: President, Edwin S. Bartram; Vice-President, Charles S. Williamson; Secretary, Lee Snowden; Treasurer, Arthur N. Leeds; Curator, Bayard Long. The resignation of Samuel S. Van Pelt as Curator, presented at the previous meeting was accepted and the following minute of the Club's appreciation of his services was presented:

The record of Mr. Van Pelt's retirement as Curator of the Club Herbarium would, we feel, be incomplete without some recognition of the services that he has rendered in this capacity.

Mr. Van Pelt's presence in the herbarium, almost daily for the past ten years, diligently preparing and mounting the specimens that are sent in, has come to be taken so much as a matter of course, that we think of him as having always belonged there and forget, perhaps, that the tireless energy that he has devoted to what would be to most of us a distasteful task, has been entirely a labor of love.

When he assumed the care of the collection in December, 1903, it was far from complete and but little attention had been given to it for several years. He at once began mounting the accumulated material and planning field excursions to secure what was lacking. He furthermore encouraged every collector to bring in specimens, and the guarantee that they would be promptly mounted furnished an incentive for collecting that had previously been lacking. A flow of specimens immediately began to pour into the herbarium which has continued ever since.

During the past eight years Mr. Van Pelt has personally poisoned and mounted 25,890 sheets of plants, and the total for his entire term of office must have come close to 30,000, besides which he repaired and strapped fully half as many more that were already mounted. He also personally collected upwards of 2000 specimens, making special trips for single species in order to secure them in all their stages of development.

The collection stands to-day as a monument to his care and devotion. His enthusiasm more than any other factor is responsible for its growth, while his skill in preparing and mount-

ing specimens has invited and made easy the critical study that others have given to them.

The Club should congratulate itself that while giving up the responsibility of the curatorship, Mr. Van Pelt proposes still to preside at the mounting-table—we trust for many years. His retirement from this position also will be to the Philadelphia Botanical Club little less than a calamity.

WITMER STONE,
ARTHUR N. LEEDS,
BAYARD LONG.

Prof. Fernald of the Gray Herbarium was present and spoke of his recent work in separating some closely allied European and American species, taking as illustrations that of *Prunella vulgaris* and *Juncus effusus*. The meeting adjourned to the usual light collation.

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club.

1914.

EDWIN B. BARTRAM, *President.*
CHARLES S. WILLIAMSON, *Vice-President.*
LEE SOWDEN, *Secretary.*
ARTHUR N. LEEDS, *Treasurer.*
BAYARD LONG, *Curator.*

ACTIVE MEMBERS.

JAMES F. BAKER, 938 Broadway, Camden, N. J.....*1896
EDWIN B. BARTRAM, Wayne, Pa. 1906
GEORGE W. BASSETT, Hammonton, N. J..... 1904
WALTER M. BENNER, Telford, Pa. 1912
GEORGE M. BERINGER, 5th and Federal Sts., Camden, N. J..... Founder.
JOHN A. BORNEMAN, Glenolden, Pa. 1912
DR. AMOS P. BROWN, 20 E. Penn St., Germantown, Pa..... 1892
STEWARDSON BROWN, Academy of Natural Sciences, Phila. Pa. Founder.
JOSEPH CRAWFORD, 16 E. Steward Ave., Lansdowne, Pa..... Founder.
FRANK MILES DAY, Mt. Airy, Philadelphia, Pa..... Founder.
RICHARD H. DAY, 419 N. 2nd St., Philadelphia, Pa..... Founder.
DR. JOHN W. ECKFELDT, 65th and Vine Sts., Philadelphia, Pa..... 1892
WILLIAM FINDLAY, 212 N. 8th St., Philadelphia, Pa..... 1908
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* Date indicates year of election to Club.

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DECEASED MEMBERS.

	Died.
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ISAAC BURK, Honorary.....	March 30, 1892
WILLIAM M. CANBY, Honorary.....	March 10, 1904
JOEL J. CARTER, Corresponding.....	May 4, 1912
DR. WILLIAM HERBST, Honorary	December 22, 1906
BENJAMIN HERITAGE, Founder	August 19, 1912
PROF. ZEPHANIAH HOPPER, Active	July 21, 1913
ALBRECHT JAHN, Founder	February 6, 1905
PROF. JOHN M. MAISCH, Honorary.....	September 10, 1893
ISAAC C. MARTINDALE, Founder	January 3, 1893
THOMAS MEEHAN, Founder	November 18, 1901
DR. ISAAC S. MOYER, Honorary	September 7, 1898
DR. THOMAS C. PORTER, Honorary	April 27, 1901
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LOUIS SCHNEIDER, Active	August 14, 1901
DR. SAMUEL P. SEESE, Active.....	1911
USELMA C. SMITH, Founder	April 2, 1902

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No. 7 1914

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PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

STEWARDSON BROWN

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BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 7. PHILADELPHIA, PA. 1914

Charles Sumner Williamson

BY WITMER STONE

The ties which bind together the members of this Club are of a kind that are not easily severed. We know one another not only as participants in the meetings but also as companions in the field—on daily tramps, camping trips or summer vacations —in that intimate association which brings out a man's character better perhaps than it can be brought out in any other way. He who successfully passes this test is a friend indeed and when he is called to precede us into the great hereafter his place among us is one that cannot be filled. Such a man was Charles S. Williamson, our late vice-president, whose death on March 23, 1914, was one of the saddest blows that our Club has sustained.

Charles Sumner Williamson was born in Philadelphia, November 1st, 1857, the son of Passmore Williamson, well known as a leading abolitionist of antebellum days, and Mercie K. Taylor.

He was educated at a small private school before entering Hollowell's Select High School from which he was graduated in 1873. That fall he matriculated at the University of Pennsylvania, graduating in 1877 with the degree of B. S. in mechanical

engineering. He was during his years in college apparently more interested in his studies than in the class activities, although he was one of the class executive committee in senior year and a member of the athletic association.

Upon graduation he entered the draughting rooms of the Harrisburg Steel Works, going from there to the works at Johnstown, Pa., where he remained until 1885, when he returned to his native city to take a position in the day school of the Spring Garden Institute as instructor in mechanical drawing. During this time he also attended the night class at the Academy of Fine Arts, following the artistic interest which was ever strong within him. With the discontinuance of the day school at the Spring Garden Institute he secured the position of instructor of mechanical drawing in Girard College which he held until his death, while for many years—until his health failed him—he continued to instruct the night classes at the Institute, and was superintendent during 1888-9.

Such in brief was the business side of his life. His main interests however, lay in other channels. His love for natural history must have developed at an early age; for when he was only eighteen he was elected a life member of the Academy of Natural Sciences, March 25, 1875. His specialty at this time was entomology and he formed quite an extensive collection, particularly of coleoptera, of which group he always exhibited a wide knowledge.

Before leaving the city for Harrisburg he had joined the Botanical Section of the Academy and in conversation during later years he showed that his knowledge of the local flora even at that time must have been quite thorough.

From then on he seems to have cultivated the study of botany whenever opportunity offered, though during the first years after his return to Philadelphia, his artistic pursuits and the demands of his profession occupied most of his time. Shortly after the Botanical Club was organized, Dr. J. B. Brinton, our first president, remarked one day that he had met a remarkably well informed botanist by the name of Williamson and had invited him to the Academy. Shortly thereafter he became a regular visitor to the herbarium, resuming his membership in

the Society from then until his death. Scarcely a week passed during the winter months that Williamson could not be found seated before a package of plants, sorting over and identifying material just received from one or another of his numerous correspondents. He joined the Club in 1897, and at once became one of its leading spirits rarely absent from a meeting, always ready with helpful suggestions when problems were presented for discussion, and usually to be counted on for a communication of value. His interest in the Club was recognized by his associates and he was chosen vice-president at the annual meeting of 1912. He was also a member of the Botanical Society of Pennsylvania and at one time of the Franklin Institute.

Williamson was an indefatigable collector, devoting every holiday to his favorite pursuit, often traveling all night by rail to reach some choice botanical locality, so as to have more time to collect before returning the next evening. By these flying trips he was able to reach such points as Wilmington, N. C., where he collected *Dionæa* and its many interesting associates; Southern Delaware, where he got *Pogonia divaricata* and the large branching *Polygalas;* or the Potomac Valley in search of *Erythronium albidum.*

His botanical enthusiasm, as we now realize, often led to personal neglect in the matter of rest and comfort and weakened a constitution none too strong. It is difficult for us, however, to find fault with such a spirit; knowing as we did so well, even though he tried hard not to show it, what a bitter disappointment it was to him to be forced to give up some fondly cherished trip or to see his companions depart on an expedition which force of circumstances connected with his profession precluded his joining.

In his long summer vacations he was often able to gratify his longing for wider fields and combining his quest for plants with the need for rest which failing health demanded, he visited such northern localities as Port Arthur on Lake Superior, Newfoundland and Quebec, as well as Florida and the far West. He thus came to possess a personal knowledge of a very large number of plants in life, while the extensive exchanges that he

carried on with correspondents in all parts of the United States gave him a herbarium acquaintance with an equally large number of species. He kept his knowledge well in hand and was able to make accurate identifications at sight and to place approximately many plants which he had never before seen.

It is regrettable that such knowledge as he possessed was not turned in a greater measure to the advantage of botanical science, but Williamson was naturally modest and retiring and did not seek notoriety in publication. His interest was centered in his own herbarium and that of the Botanical Club and he cultivated botany primarily as a recreation and personal pleasure with no thought of burdening himself with the responsibilities that serious authorship entails. Indeed I know of but one publication under his name—a catalogue of the plants observed by the Botanical Symposium, in Southern Delaware in 1909 (*Torreya*, 160–166, Aug. 1909). By a happy provision of botanical nomenclature however, his name will even be associated with the science that he loved, as a beautiful new species of *Marshallia* discovered by him at Wilmington, N. C. has been named by Dr. Small in his honor, *Marshallia Williamsonii*.

His herbarium of some 10,000 sheets has through the generosity of his sister become the property of the Academy and will be preserved for all time in the rooms where he loved to work, along with the collections of his associates—a disposition which I feel sure would have met with his hearty approval.

Williamson's botanical interests were, however, not entirely limited to his herbarium. He took a great delight in rearing wild flowers in the little yard of the house in Mt. Vernon Street where, with his devoted sister, Miss Mary Williamson, he made his home. He carried in soil of various kinds, rocks, sand and logs, and with the aid of boxes, pots and the water supply from the city hydrant, produced conditions of environment suitable to the great variety of plants that he brought home from his various trips. Through his constant care, he not infrequently had several hundred species of wild flowers growing and blooming in this little plot, scarcely more than fifteen feet square.

When we think of Williamson, there always comes to mind one or another of the many local field trips that we shared with

him. We see him with press and vasculum strapped across his shoulders; trowel and knife and cotton and other materials for the preservation of dried and living plants all in evidence. Be it in a driving rainstorm such as marked one June trip to Cold Spring, N. J., or under the sweltering sun of the Pine Barrens in midsummer, he even preserved the same unflagging good nature and almost child-like enthusiasm. Always the one to volunteer to wade into the mud or water for some specimen tantalizingly just out of reach, and ever willing to divide whatever he obtained with his friends. We recall him again resting on the shores of one of the mountain lakes of the Alleghanies, talking of the plants of interest which he had found, and the identification of which he had made at sight, or perhaps quoting at length from poetry or fragments of literature which had especially appealed to him in his home reading.

He was a good talker, well informed on many a subject, and a keen observer. He absorbed all that is best in the outdoor life that he loved so well and constantly presented those qualities that go to make the generous friend and lovable companion that we knew so well.

On the Occurrence of the Keeled Garlic in America

BAYARD LONG

The discovery in the United States of the European Keeled Garlic was greeted by the botanist of the Pennsylvania Agricultural Experiment Station as an event of economic importance. During nearly fourteen years the plant has apparently failed to live up to the evil reputation given it at that time, and has shown itself to be the most exemplary and well-behaved of weeds. Although it may or may not still prove to be economically important, like the Field Garlic, its history in America, its growth habits, and its distribution prove to be of considerable interest.

The American bibliographic history of this garlic, *Allium carinatum* L., consists, from the time of its discovery on this continent in 1901, up to 1913, of one readable account, several references in manuals and floras, and a published query concerning its distribution. During these years the succeeding citations contain no additional information to that given in the original account of its discovery at a single station in eastern Pennsylvania.

In 1913, rather obscurely published, perhaps, occur the first records of new localities, and some original observation on its habitat and probable economic importance. The following year the species was reported from an additional state, but the record was shortly withdrawn as unsubstantiated. In the latest reference, during the present year, there is a return to the information of 1901, presumably as the summary of our present knowledge of the distribution of the plant.

This literature may be briefly summarized as follows :

1901. Britton, Manual of the Flora of the Northern States and Canada, 1046. In the appendix is found the first reference to the occurrence of this plant in America. There is a brief description, and "Bucks Co., Penna. N. E. Arnold, fugitive from Europe."

1902. Buckhout, Weeds in General: Two New Comers into Pennsylvania. Pa. State Coll. Agr. Exp. Sta. Bull., 58: 5–7. In this paper is a two-page account of the Keeled Garlic, describing its discovery in America, and its supposed characteristics and economic importance. Much of the contained information needs considerable revision. The main thesis is the sounding of a general warning to farmers. The exact locality is given (or in part to be inferred): along Neshaminy Creek, Grenoble, Bucks Co., Pa. There is a fair half-tone illustration of the plant in full bloom.

1903. Porter, Flora of Pennsylvania, 82. The information here is: "In fields, Eastern Pa. Introduced from Eu. . . . Bucks."

1905. Keller and Brown, Flora of Philadelphia and Vicinity, 100. Here Dr. C. D. Fretz definitely records the plant for Mr. N. E. Arnold from Grenoble, Bucks Co., Pa.

1905. Britton, Manual, ed. 2, 1059. Carried on from the first edition.

1907. Britton, Manual, ed. 3, 1069. The collector's name is here dropped.

1908. Robinson and Fernald, Gray's New Manual of Botany.[1]

1910. Taylor, Local Flora Notes—IV. Torreya, x. 145. Under *Allium carinatum* he says: "In the appendix to Britton's Manual this plant is given as a naturalized plant in Bucks Co., Pa. Is it naturalized elsewhere?"

1913. Proceedings of the Philadelphia Botanical Club. Bartonia, v. 18. Under date of April 25, 1912, occurs the following: "Mr. Bayard Long gave his observations on *Allium carinatum*, . . . along Edge Hill Road near Willow Grove, and at Camp Hill, Ashbourne, and several other localities it was found well established." These stations are in Montgomery County, Pennsylvania.

1914. Britton and Brown, An Illustrated Flora of the Northern States and Canada, i, 499. The species is included in the regular text, with description, illustration, (a line drawing doubtfully made from fresh American material)[2] and a distribution: "Roadsides, New Jersey[3] and Southeastern Pennsylvania."

[1] Strangely enough in the new Gray there is no mention at all of the occurrence of the species within our range. Where such careful attention has been paid to new introductions, it is surprising that Dr. Robinson should have neglected to note this interesting European plant which was already recognized in at least half-a-dozen volumes dealing with the flora of the area covered by this manual.

[2] The exsertion of the stamens is far greater than occurs in any living plants which I have seen. Dr. Britton is of the opinion, however, that the drawing of the single enlarged flower (by the artist A. Mariolle) was made from material communicated to the New York Botanical Garden by Dr. C. D. Fretz.

[3] Upon my inquiry Dr. Britton looked up the evidence of this New Jersey addition to the range and found it to be based upon an unverified report given him during the preparation of the manuscript. The record failed to be checked up, and should be stricken out, as Dr. Britton suggests.

1915. Taylor, Flora of Vicinity of New York, 233. The information given here is: "Fugitive from Europe and in North America known only from Bucks Co., Pa., where it is a rare escape; erroneously recorded from N. J." From whence or what it is escaped is not altogether clear.

In the middle of August, 1909, I was much surprised to find a strange garlic with flowers of a curious yellow-brown, greenish overcast, on the edge of the woodlands near my home at Ashbourne, just outside of Philadelphia city limits. The time of bloom and the unusual color of the perianth alone were sufficient to attract attention. Our common field garlic, *Allium vineale*, is considerably past bloom at this season in the Philadelphia district and has flowers of a quite ordinary green or of varying shades of a conspicuous rose or purple. There was a single plant, which was carefully preserved and duly suspected of being *A. carinatum*, after the appendix of Britton's Manual, supplemented by a handy set of Thome's Flora von Deutschland, was consulted.

Nothing further was seen of the plant until the following year when on August 5 an abundance of the same species was found near Willow Grove, in Montgomery County, Pennsylvania. The plants were growing on roadside banks on the margin of the woods along Edge Hill Road east of Old York Road. They were then in full bloom, showing in addition both buds and withered flowers. Two days later I was happy to find a new station of perhaps twenty plants at Ashbourne, about a half-mile distant from the 1909 plant. Again the habitat was a shaded roadside bank. Fresh material of these two collections was sent to Dr. N. L. Britton, who verified it as *Allium carinatum*. On August 9 two new localities were found on Camp Hill, in Montgomery County: one was the usual steep roadside bank, this time under thick shrubbery; the other was the only occasion when I have ever found the plant in the open. This was a small colony along the Trenton cut-off of the Pennsylvania Railroad. These plants were in a very poor condition, while all the other colonies were thrifty and of luxuriant growth.

Prof. Buckhout, in speaking of the first known American locality along Neshaminy creek, in Bucks County, Pennsylvania, describes the plant as "being found in more or less abundance

over poorly and unequally cultivated lands of perhaps scarcely twenty acres extent." I had become considerably interested in the finding of this garlic during this summer of 1910, and through the kindness of Mr. N. E. Arnold, the discoverer of the plant in America, I was guided over the original locality on August 19. It was with scarcely any surprise but with no little interest that I found that the new garlic was here, also a plant on the shaded roadside banks and wooded slopes, while the abundant weed in nearby old fields, once cultivated, was *vineale*. *Carinatum* was not seen here at all in cultivated lands, nor have I ever found it in such habitats.

Since 1910 my botanizing has been largely in other territory, but I have found from time to time a number of new stations. Most of these are in the general vicinity of Ashbourne: in one, the garlic (of several colonies) is growing on ordinary rich wooded slopes some distance removed from any road, and to the uninitiated might as well be indigenous as the *Deringa*, *Geranium maculatum*, or *Eupatorium urticaefolium* with which it is here associated; at another locality the plants are growing under the dense shade of Poison Ivy at the foot of an old roadside stone wall; in a third place a colony is upon a steep crumbling roadside bank overshadowed by trees; a fourth station, at least a mile distant from any of the above noted, is again on a woods margin bordering a road. The latest colony to come to my attention, during the past April, is similar to the first Ashbourne station mentioned just above, except in size: more than thirty colonies were noted here.

An additional station has been found along Edge Hill Road near Willow Grove, even more luxuriant in its growth and number of colonies than the original locality in this vicinity.

In February of the present year a locality was discovered near Abington, Montgomery County, Pennsylvania. The fresh green leaves were above ground several inches and the plants as readily recognizable as if in flower. Here again the Keeled Garlic occurred in its characteristic habitat.

So consistent and characteristic does this habitat prove to be that it would seem safe to discount much of the fear which Prof. Buckhout has expressed of the Keeled Garlic becoming a

bad weed. He warns the farmers "that it is more than likely to prove a troublesome weed over all the section that the last named species [*A. vineale*] occupies. None who live in a garlic infested region need be told how serious a nuisance garlic is, and how difficult it is to eradicate. To add another species of similar general character may not perhaps double the trouble but it is certain to increase it, and hence farmers should exercise special care that this noxious plant is not allowed to get a foothold with them." It is still true today, as he points out in 1902, that "it has not been known long enough [for one] to be certain of its powers of adoption or spreading," yet it must be acknowledged that there seems to be no real evidence in America of its being in any way at all troublesome.

It may be true that "it has long been regarded as one of the most troublesome field weeds in many parts of Continental Europe," as Prof. Buckhout asserts, but this fact does not seem to be insisted upon in the generality of European works. Ascherson and Graebner, Rowy, Thome, etc. rather give one the impression that this is an indigenous plant occupying natural habitats. It may be noted that the habitat given in the very dependable work of Ascherson and Graebner[1] is strikingly similar to that occupied by the plant as it grows in America: "An Wald- und Wegrändern, in Gebüschen. . . ."

It will be recalled that the plants of the only station found in the open—along the Trenton cut-off of the Pennsylvania railroad, on Camp Hill—were notably in a starved, unhealthy condition. This fact, when considered along with the thrifty habit of all other colonies known to me, is rather suggestive evidence that the Keeled Garlic is primarily a plant of woodland habitat rather than campestral. May not this species, like so many other introductions[2] find our natural habitats, and not these of waste or cultivated grounds, most suitable for its requirements? And may it not, possibly, find a place for itself in our flora not unlike that which it holds in its own native region?

Some comparative description of a more intimate nature—

[1] Synop. Mitteleurop. Fl., iii, 149.

[2] See Bartonia, iii, 22–25 (1911).

especially of the more immature stages of the plant—than is found in American botanies, or even European treatments (where the two species are seen to belong to widely separated groups of this large genus) will be of service, it is hoped, in bringing this interesting introduction to the knowledge of more collectors. If colonies of garlic noted in appropriate habitats are carefully examined, it can be asserted with confidence, I think, that numerous new stations will be found in at least southeastern Pennsylvania. The importance of a knowledge of the distinguishing characters of a plant *throughout its growing season* can scarcely be overestimated as an asset to the collector's chance of finding any certain species.

In its very early state with only the lower leaves partly showing, it is not the most difficult to distinguish (as might be thought) but already it can be separated from *vineale* by several strikingly different characters. The upper portion of the leaf is quite flat, with a definitely rounded tip, while in *vineale* the leaf is nearly terete with a gradually attenuated tip. When the top of the leaf is pressed between the fingers the flat leaf-tip of *carinatum* will be resistent while the terete tip of *vineale* will be readily compressible.

The different habits of the two plants are particularly noticeable in the early, spring state, before the growth of the culms. *Vineale*, as is known to everyone familiar with outdoors about Philadelphia, forms close, dense tufts, often of considerable size. The leaves are very hardy and the bright green patches of garlic are a conspicuous feature among the dull browns of winter and spring. *Carinatum* is characteristically found in a scattered growth with the individuals of a colony noticeably separated, not crowded upon each other.

Investigation of this difference of habit leads one to an examination of the bulbs and here is found one of the most striking and interesting distinctions between the two plants. In *vineale* abundant secondary bulblets are produced underground from the axils of the outer scales of the mother-bulb. Unless the tuft of garlic is disturbed, these bulblets remain positioned around the old bulb, start their own individual growth, and thus the close, dense tuft of plants is found which gives the

species its characteristic habit. But in *carinatum* a very different growth process occurs. The bulbs are simple, and yet secondary bulblets are produced—by a most interesting method. If the plants are examined in late winter or early spring, it will be found that the outermost of the new green leaves arising is more slender than the others and that just below it a swelling may be noticed within the leaf-sheath. As the development proceeds this outer sheath will split and from its mouth emerge a tiny onion borne upon a slender stem arising from the heart of the mother-bulb. This parent-stem elongates. A radical appears, and as growth-impetus is received from contact with the soil, it develops rapidly, and the bulblet begins to take root. The parent-stem gradually dies and the bulblet is soon leading an independent existence.

At times the bulblets may be found slightly below the surface of the ground but often they are quite exposed, or covered only by the loose, moist leaf debris on the soil surface.

The characteristic scattered growth of *carinatum* is to be explained from these two facts: first, that the bulblet has a distinct chance of becoming somewhat removed from the parent; second, that there appears to be produced only one or two bulblets from a parent bulb, instead of quite a number as in *vineale*. Bulblet-producing vitality is early developed, however: young bulbs regularly produce bulblets before they do flowers.

The presence of these peculiar bulblets is an unfailing identification mark of *carinatum*, especially valuable in its early seasonal growth.

When the stem leaves have well developed, additional characters appear which are readily discernible. The leaves may be described, more fully, as semi-terete or somewhat flattened but becoming quite flat toward the apex, with a definitely rounded tip, and solid in texture (or in the lower portion at times developing a partial air-cavity);[1] while in *vineale* the leaves are

[1] The portion of the *Allium* key in the "New Illustrated" relating to this species is not above criticism. *Carinatum* is here placed under heading "Leaves terete, hollow, . . ." in contradistinction to "Leaves flat or channeled, . . ." but in the description we read "leaves linear, channeled below, flat toward the apex. . . ."

nearly terete, with a gradually attenuated tip, and consistently hollow throughout their length. A practicable, distinguishing character, always found useful in the field, is this fact that *carinatum* has leaves comparatively resistent to compression by the fingers while *vineale* has foliage always very soft and easily crushed.

Generally *carinatum* can also be distinguished by a fine roughness as its leaves are pulled through the fingers. Under a lens it will be seen that the epidermal surface, and especially that of the longitudinal ridges, is finely papillose.

Since the leaves are much flatter in the one there is a strong and characteristic tendency here to twisting, while the terete character of the other tends to keep its leaves comparatively straight. After the flowering season or during late bloom, the dead and dried leaves of *carinatum* are very conspicuously twisted and curled as they hang about the stem.

Commonly the stem early shows a considerable weakness, and is likely to become sprawling or decumbent, sometimes for half its length, unless supported by other vegetation. I have noted also plants growing erect for about a foot up through other vegetation and then the summit of the stem toppling over and reclining upon the other plants. This weakness of the stem in *carinatum* seems quite characteristic, while ordinarily *vineale* seems to be a stiffly erect plant. Pressed specimens commonly show a conspicuous bend in the stem a short distance above the bulb, and often several other bends and twists as the plant has sprawled around before extending its umbel erect at flowering time.

With the appearance of the bracts of the umbel from the summit of the leaf-sheath, there is seen a very marked difference between the two species. In *carinatum* the two bracts are of unequal length, one being very long and leaf-like, the other short and united with the longest except at its tip, *i. e.* the apex of each is free. In *vineale* there is only a single, short bract[1] with the upper portion linear and beak-like. With the develop-

[1] The longer bract in *carinatum*, in my material, measures up to 15 cm.—rarely 20 cm.—while in *vineale* the bract seems rarely to exceed 2–3 cm.

ment of the umbel, the behavior of the bracts is again quite different in the two species. In *carinatum* they gradually separate (commonly from the tip down) and the inflorescence appears as they deflect on either side. The bract dries, like the leaves, as the plant matures, and remains persistent. In *vineale*, however, the upper portion of the bract remains firmly united along its edges; the umbel breaks through the lower, dilated, sheathing portion, commonly on one side only; the bract deflects on one piece on the opposite side and generally soon falls away.

There is scarcely even a remote chance of overlooking *carinatum* when in flower, under the impression that it is only *vineale*. I may say "only" because in the Philadelphia district the Field Garlic is more than common: it is a vile and pernicious weed abundant nearly everywhere, and worthy the wrath of every farmer and dairyman.

In the first place, the flowering seasons are strikingly different, a point which is often overlooked by systematic botanists and is frequently of very considerable value in separating closely allied species.[1] In the Philadelphia region *vineale* is rarely to be found in flower after late July. It is commonly in ripe fruit in early or mid-August when *carinatum* is just in full bloom. The flowering season of *carinatum* appears to be from late July to late August while that of *vineale* is about late June to late July.

The general color impression given by the flowers of our American *carinatum* is a striking and unique hue of yellow-brown with a greenish suffusion. The sepals are the more heavily suffused with color. All the perianth parts have green keels or midribs. Under a lens, dull reddish-purple stripes (more prominent toward the apices of the perianth parts) are visible. In dark shade the pigments are only slightly developed: the flowers are then very pale or even almost white. But in all the colonies known to me, the coloration of the flowers is similar and differs only in intensity. The color is here described in detail and the uniformity of coloration in all American plants

[1] A good case is that of the two well-marked species. *Smilax herbacea* and *S. pulverulenta*.

(as far as known) noted, because in Europe a number of color-forms are recognized, ranging mostly from rose to violet, purple or some such hue, and these colors have been used in the description of our American plant. With fresh material this is rather misleading, as there seems to be little, if any, impression of these colors given, although there is present the dull reddish-purple. On drying, however, the tissue of the perianth becomes suffused with this pigment and at times assumes a definite rose color, especially along the keels. The flowers of *vineale* vary so greatly in color, from green to brilliant tones of rose or purple, and are so well known, that it may suffice to say that, in at least my own experience, the characteristic color of our American *carinatum* has never been met, or even approached, in *vineale*.

The appearance of the umbel is characteristic in each species. In *vineale* the replacement of flowers by bulblets is very common. The inflorescence may be composed of both flowers and bulblets, wholly of flowers, or wholly of bulblets: in *carinatum* (as far as our American material shows) both flowers and bulblets are always present. The flowers (or bulblets) are much greater in number in characteristic *vineale*, and the pedicels have a strong tendency to be erect or ascending; while in *carinatum* the pedicels are widely spreading, and after anthesis, drooping. This deflection of the pedicels is very characteristic.

On dissection of the flower, the technical character which places *carinatum* and *vineale* in quite different groups will be seen. The former has simple, slender filaments to the stamens while in the latter the filaments are broad and flattened and the inner ones bear a toothlike projection on each side.

The matter of capsule and seed-production may be noted because of Prof. Buckhout's assertion that "it is undoubtedly well-fitted to become a troublesome weed since it propagates by secondary underground bulblets, aerial bulblets and by seeds." Unquestionably the species may potentially produce seeds, but I have never been able to find mature capsules in our American plant, although careful search has been made in numerous colonies at the proper season. Furthermore, it is interesting to note that, although there has been rather scanty material avail-

able for examination, none of it, in either the Herbarium of the Academy of Natural Sciences or that of the New York Botanical Garden, shows capsules. Possibly, like many other plants which have both flowers and bulblets, it largely, or even entirely, depends upon the latter for its propagation. The question of proper insect pollination may possibly be pertinent, but it would seem rather unlikely in such a simple flower.

Notes from "The Eastern Shore"

BY J. P. OTIS.

Though the writer is now too remote from the home of the Club to allow of personal participation in its sessions, such glimpses of the flora of this region as duties have allowed during the past fourteen months, seem to show features it may be of interest to report. The geological and topographic features are too well known to call for much comment. It might almost be called a twin of the southern New Jersey region though with important differences. It has no "fall line" related to its swamps and levels as has Southern New Jersey, save perhaps at the extreme north, this feature being mostly separated from it by the great Chesapeake Bay. It has too been far more affected by cultivation than the New Jersey pine barrens; still both regions have some features more or less reflected in their floras.

Sharpstown, Wicomico County, Md., is on the Nanticoke river twelve miles below Seaford, Delaware, and about a mile and a half from the southwest corner of that state; just across the river is Dorchester County, Maryland. Along most of the course of the Nanticoke are marshes, locally called "cripples", back of which in numerous localities are dense swamps. Through this border of marsh and swamps run a number of creeks; these in former years were thickly studded with sawmills, mostly now gone aud in some cases the ponds changed into quaking bogs, much like the savannas of Southern New Jersey.

Along these creeks and some parts of the main river *Chamaecyparis thyoides*, here called "Cedar Cypress", grows quite abundantly. Among the more notable plants of this part of the region are:

Sarracenia purpurea.
Castalia odorata, some unopened buds showing pink.
Orontium aquaticum, in great abundance.

Gratiola aurea.
Utricularia gibba.
Sclerolepis uniflora.
Smilax laurifolia.
S. Walteri.
S. rotundifolia.
S. glauca.
S. hispida.
Ilex opaca, some trees being of extraordinary size.
I. glabra.
Aralia spinosa.
Myrica cerifera.
Ceanothus americanus, some bushes of great size.
Chionanthus virginica.
Quercus triloba.
Q. alba.
Q. marilandica.
Q. stellata.
Q. prinos.
Q. phellos.
Q. nigra.
Erianthus saccharoides.
Glyceria obtusa.
Scirpus sylvaticus.
S. americanus.
Dulichium arundinaceum.
Rynchospora glomerata.
Arisaema pusillum.
Proserpinaca pectinata.
Kalmia latifolia, locally called "Ivy."
K. angustifolia.
Cornus florida.
C. ammomum.
Magnolia glauca.
Nyssa biflora, with just now a wealth of big fat black berries, here said to be edible.
Viburnum dentatum.
Rhus vernix, very luxuriant.

Aronia arbutifolia.
A. atropurpurea, the berries here used for pies.
Azalea viscosa.
A. arborescens.
A. nudiflora.
Acer carolinianum.
Eriocaulon compressum.
E. septangulare.
Fuirena hispida.
Eleocharis interstincta.
Eriophorum virginicum.
Scirpus cyperinus.
Drosera intermedia.
D. rotundifolia.
Pogonia ophioglossoides.
Cypripedium acaule.
Polygonella articulata.
Pluchea foetida.
P. camphorata.
Sericocarpus linifolius.
Solidago fistulosa.
S. neglecta.
S. canadensis.
S. odora.
Euthamia tenuifolia.
E. minor.
Meibomia viridiflora.
M. Michauxii.
M. stricta.
M. obtusa.
Gaultheria procumbens.
Lespedeza Stuvei.
L. striata.
L. repens, here beginning to bloom the latter part of May.
Decodon verticillata, in great luxuriance.
Viola lanceolata.
V. primulaefolia.
V. cucullata.

Vicia cracca.
V. sativa.

The riparian flora of the river proper though less varied and blending into that of the swamps and creeks, is also of interest:

Willugbaeya scandens.
Pontederia cordata.
Nymphaea advena.
Sagittaria latifolia.
Peltandra virginica, locally called "Tuckahoe."
Hibiscus moscheutos.
Eryngium virginianum.
Acorus calamus.
Zizania aquatica.
Polygonum arifolium.
Atriplex hastata.
Acnida cannabina.
Bidens trichosperma.
B. laevis.

All these grow luxuriantly and some might well be called giants, two specimens of *Acnida cannabina* were fourteen and fifteen inches around at the base and I estimated the height at seven or eight feet.

Back of and between these streams and swamps are the arable lands, mostly levels of sand but near the river, rising into something like dunes. The notable native plants are *Opuntia opuntia* in great abundance, actually a troublesome weed as is *Scleranthus annuus* and *Euphorbia ipecacuanhae* omnipresent and omniform, *Linaria canadensis* often in great sheets of bloom, *Heterotheca subaxillaris* galore, much as ragweed further north but of which we see little here, *Condrilla juncea* everywhere abundant and luxuriant, *Asclepias tuberosa* far the most abundant Asclepiad, *Symphoricarpos Symphoricarpos* if not indigenous wonderfully well naturalized, *Agalinus paupercula*, *A. fasciculata*, *A. setacea*, *Hypopitis americana* and *Dolicholus erectus*, these last two in pine woods.

Plants evidently introduced are also a prominent feature of the farm lands; especially is this true of *Erodium cicutarium*; the

manuals and other books dealing with the flora of the general region, give its southern limit for the northeastern United States as Pennsylvania. Here however it is abundant in all sorts of habitats and is in some cases a troublesome weed, in at least two instances seen completely covering fields five acres in extent and very luxuriant, a specimen collected for the Club being about ten inches in spread, with stalks eleven and fourteen inches high. It bloomed to some extent in our mild November and in dead of winter its leaves assumed a brilliant coloring. Another rather generally introduced plant is *Gilia rubra*, originally planted in the gardens, but little so grown now, it has become established in numerous waste places. *Yucca filamentosa* which occurs similarly, in waste grounds as well as in the gardens, is probably here endemic, and has been introduced into cultivation from the wilds.

Another plant occurring in quite a number of places but with no evidence of having been artificially planted is *Robinia Elliottii*, a southern coastal species not recorded as occurring north of North Carolina. Its occurrence here in Maryland as an undoubted endemic plant is an interesting range extension.

In the southwest corner of Delaware along the road leading from Sharpstown, Maryland to Laura, Delaware, I have collected *Froelichia floridana* noted in *Britton and Brown* as "reported from Delaware."

General Notes

Additions to the Herbarium—During the year 4795 mounted sheets of plants were added to the Club herbarium, this being the largest number for a single season.—S. S. Van Pelt.

Claytonia virginica **with Orange-colored Flowers.**—Spring Beauties with flowers of this unusual color were gathered this season in a meadow near Quakertown, Pa. The plants were in considerable abundance and appeared normal in every way excepting in the color of the flowers.—Frank Ball.

Corrections of Some Cape May Records.—Owing to some error in transcribing records in Stone's "Flora of Southern New Jersey" two species are credited to me from Cape May which I have not found there, i. e. *Arisaema dracontium* and *Myosotis laxa.* Dr. Stone states that he has no other authority for the occurrence of these species at Cape May and that their publication was obviously due to an error of compilation, a certain number of which are almost inevitable in preparing such a mass of data for publication. He will be grateful for the correction of any other mistakes of the same sort which may come to light.

In order to make the status of certain other Cape May plants clear, I may say that *Cimicifuga racemosa*, *Helianthus divaricatus*, *Meibomia stricta*, *M. canadensis* and *Galium boreale*, I have found here only on railroad ballast while *Lobelia syphilitica*, *Anemone canadensis*, *Actinomeris squarrosa*, *Viola latiuscula* and *Thalictrum dioicum* occur in vacant lots and hedge-rows and are obviously introductions.—O. H. Brown.

Some Further Notes on *Carex leavenworthii* **in New Jersey.**—This sedge was originally found along the junction of the salt marsh with the upland, on what is now called East Cape May. It grew in a damp open spot on fresh meadow-land, in company

with *Carex glaucodea*, *C. futucacia brevior* and other species native to this part of the state. This station was destroyed by the suction-dredges that have filled in the low-land in this part of Cape May, but later, 200–300 feet distant, the plant was found on the upland under trees in private ground. This spring, on the west side of the town, I found a clump of *C. leavenworthii* in a lawn and another not far distant along the sidewalk. Whether the original colony was actually indigenous, and the colonies on lawn and sidewalk have perhaps spread from it; whether these stations in the town have arisen independently through grass-seed, baled hay, or transported soil; or whether *all* the Cape May localities are due to artificial introduction, it appears impossible to determine. It must be noted, however, that I have never found it on the mainland outside the city limits. As it is said to be found in the District of Columbia, perhaps there should be no reason why it should not be found here also, as such plants as *Gratiola sphaerocapa*, *Tecoma radicans*, *Lobelia puberula*, *Eupatorium coelestinum*, all of which seem to be native in Cape May, have ranges similar in some respects. This sedge seems well adapted to maintain itself under adverse conditions as many of the culms lie flat upon the ground and in the case of the specimen collected on a lawn numerous spikes had escaped the blades of the lawn-mower.—O. H. Brown.

Juncus brachycarpus **Engelm. in New Jersey.**—This interesting plant was collected on Sept. 20, 1913, in a swamp at the head of Mill Creek, Cold Spring, N. J., but was not identified until the past winter, when I sent part of my collection to the Botanical Club herbarium. At the point where it was collected a spring runs out of the hillside, over a white sand bottom, and it was in this white sand, growing up from tufts of *Selaginella apus* and *Carex leptalea harperi*, and interspersed with a heavy growth of *Sabbatia dodecandra* and other native vegetation, that this was found. It would seem that this must be indigenous, as a close examination of this swamp shows only native plants, some of which are to be found nowhere else in Cape May Co., so far as I am aware; this being the only place I have collected *Carex lacustris* and *Penthorum sedoides*.

The only possibility of its artificial introduction would be the proximity of the railroad which crosses the swamp about thirty feet from where it was collected. There seems to be no introduced vegetation on the railroad right-of-way at this point as it was probably graded up from a nearby hill.

There would perhaps be no reason why this should not be found in New Jersey. Gray's Manual gives its range as "Mass. to N. C." on the coast, and as the known stations for it within these limits are few and far apart, whatever agency distributed the seed at these widely separated points, could no doubt bring it here. It would be interesting to know just how such small seeds as those of the *Juncus* are carried to places so far from each other.

I am indebted to Mr. Bayard Long for the information concerning the localities nearest Southern New Jersey, where *Juncus brachycarpus* has been found. So far as known the nearest station for it is at Ocean Beach, near New London, Conn., where it is believed to be introduced on newly graded land. The next farthest northern locality is at Scituate, Mass. and another at Fort Fairfield, near the mouth of the Aroostook River, in Maine. To the south of New Jersey, it occurs at High Point, Guilford Co., N. C. where it was collected by Wm. M. Canby in 1868. As it seems to be a plant of the Mississippi Valley, and very rare on the Atlantic Seaboard, its occurrence anywhere on the coast is very interesting.—O. H. Brown.

Abstract of the Proceedings of the Philadelphia Botanical Club for 1914

January 23, 1914. Eleven members present. Dr. Stone spoke on the flora of the Mountains of Sullivan County, Penna., near Lopez, which is the most boreal in character of any in the eastern part of the state. An interesting series of specimens of *Sagittaria rigida* and *S. latifolia* were shown, attention being called to the marked changes due to environment. Variations in the leaf form of *S. latifolia* were shown from very broad to to narrowly linear. *S. rigida* growing along running streams, fruits abundantiy along the shallow borders but to a markedly less degree as the plant grows in deeper water.

Sparganium americanum was exhibited together with a series of *S. diversifolium* showing gradation to the var. *acaule.* When growing on the banks of the ponds or streams it has wiry, erect leaves; in deep water they are softer and with the ends floating. Mr. Long recounted a winter trip in the vicinity of Haddonfield, N. J., when several plants of interest were noted, including *Lygodium palmatum*, *Helonias bullata* and *Artemisia caudata.*

February 26. Ten members present. Dr. Harshberger spoke of some of his experiences with the flora of Southern Florida, a low flat country, the highest part of which is only thirty feet above the sea level. The flora of the east coast is subtropical, supporting many plants common to the Bahamas and West Indies, while the West Coast contains many plants common to the Northern States and temperate region. Specimens of many of the species collected were shown on the wall in illustration.

March 26. Ten members present. The chair called attention to the recent death of Mr. Williamson. The following minute was adopted and the Secretary instructed to forward copies to Miss Williamson and the Public Ledger:

The members of the Philadelphia Botanical Club have heard with the deepest sorrow of the death on March 23, 1914 of their fellow member and Vice-President, Charles Sumner Williamson. Mr. Williamson was one of those who had the welfare of the Club and botanical science constantly at heart. Untiring in field work and indefatigable as a collector, he was ever searching far and near for the rare and unusual in the realm of plant life while his greatest pleasure was to share, both his choice specimens and his profound knowledge with his friends and colleagues.

The Club feels that in his death it has suffered an irreparable loss, while the members individually mourn a friend for whose learning they had the greatest respect and whose generous disposition and manly, unassuming character endeared him to them all.

Dr. Pennell spoke of a collecting trip during the past summer in the Southern Coastal Plain, describing the regions visited together with the more interesting of the plants collected.

April 23. Eight members present. Mr. Harold St. John spoke on the flora of Sable Island, Nova Scotia, where he had spent a month during the latter part of the summer of 1913. A short historical sketch of the Island was given together with its natural features and the characteristic plants comprising its flora, a feature being the absence of trees.

September 24. Eight members present. Mr. B. H. Smith spoke of a number of specimens of trees recently collected by him at Hatboro, Pa., Tip Top, Va. and Salisbury, Md. in company with Prof. C. S. Sargent. Mr. Welsh described a trip on the Tobique River, N. B.

October 22. Eleven members present. Mr. Van Pelt described a walking trip taken a month ago through the Berkshire Hills, Mass., noting the more interesting plants observed. A letter from Mr. Otis was read commenting on some plants observed by him in the vicinity of his home at Sharpstown, Maryland. Mr. Lippincott showed a portion of a vigorous plant of *Cassia*

occidentalis which had come up as a waif in the garden of a neighbor at Swedesboro, N. J.

November 25. Fourteen members present. Mr. Brown spoke of a trip, August 16 to September 10, at Blue Hill, Me., illustrating his remarks with specimens collected. Mr. Long spoke of a trip on November 14, to Mulleca Hill, N. J., when many specimens of interest were collected.

December 31. Nineteen members present. The following officers were elected to serve for the ensuing year:

President, Charles D. Lippincott.
Vice-president, Dr. John W. Eckfeldt.
Secretary, Lee Sowden.
Treasurer, Arthur N. Leeds.
Curator, Bayard Long.

The evening was devoted to the entertainment of the botanists in attendance at the meeting of the American Association for the Advancement of Science in whose honor a smoker had been arranged in conjunction with the Botanical Section of the Academy. About 200 visitors attended.

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club

1915.

CHARLES D. LIPPINCOTT, *President.*
DR. JOHN W. ECKFELDT, *Vice-President.*
LEE SOWDEN, *Secretary.*
ARTHUR N. LEEDS, *Treasurer.*
BAYARD LONG, *Curator.*

ACTIVE MEMBERS.

JAMES F. BAKER, 938 Broadway, Camden, N. J. *1896
EDWIN B. BARTRAM, Wayne, Pa. 1906
GEORGE W. BASSETT, Hammonton, N. J. 1904
WALTER M. BENNER, Telford, Pa. 1912
GEORGE M. BERINGER, 5th and Federal Sts., Camden, N. J. ..... Founder.
JOHN A. BORNEMAN, Glenolden, Pa. 1912
DR. AMOS P. BROWN, 20 E. Penn St., Germantown, Pa. 1892
STEWARDSON BROWN, Academy of Natural Sciences, Phila. Pa. Founder.
JOSEPH CRAWFORD, 16 E. Steward Ave., Lansdowne, Pa. ..... Founder.
FRANK MILES DAY, Mt. Airy, Philadelphia, Pa. ..... Founder.
RICHARD H. DAY, 419 N. 2nd St., Philadelphia, Pa. ..... Founder.
DR. JOHN W. ECKFELDT, 65th and Vine Sts., Philadelphia, Pa. 1892
WILLIAM FINDLAY, 212 N. 8th St., Philadelphia, Pa. 1908
DR. C. D. FRETZ, Sellersville, Pa. 1892
BARTRAM W. GRIFFITHS, 4024 Green St., Philadelphia, Pa. 1902
J. H. GROVE, New Egypt, N. J. 1905
ALBERT C. GRUBER, 716 Haw Ave., Norristown, Pa. 1910
DANIEL W. HAMM, Allentown, Pa. 1912
DR. JOHN W. HARSHBERGER, 4839 Walton Ave., Philadelphia, Pa. ... 1911

* Date indicates year of election to Club.

WILLIAM E. HAYDOCK, 4110 Parkside Ave., Philadelphia, Pa..... 1903
F. F. HUBER, Pennsburg, Pa. 1911
DR. A. ARTHUR JONES, 1810 Jefferson St., Philadelphia, Pa..... 1897
DR. IDA A. KELLER, Girls High School, Philadelphia, Pa..... 1892
REV. W. W. KISTLER, Pennsburg, Pa. 1911
PROF. W. A. KLINE, Ursinus College, Collegeville, Pa..... 1911
LOUIS C. KLOPP, 1301 SNYDER AVE., Philadelphia, Pa..... 1910
DR. HENRY KRAEMER, 145 N. 10th St., Philadelphia, Pa..... 1898
DR. HENRY A. LAESSLE, 59th and Market Sts., Philadelphia, Pa... 1894
DR. H. PEARCE LAKIN, Lansdale, Pa..... 1906
MRS. H. PEARCE LAKIN, Lansdale, Pa..... 1906
HENRY A. LANG, 4917 N. Camac St., Philadelphia, Pa..... 1901
CHARLES H. LA WALL, 507 S. 42nd St., Philadelphia, Pa..... 1896
ARTHUR N. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
MORRIS E. LEEDS, 5321 Baynton St., Germantown, Pa..... Founder.
DR. T. MONTGOMERY LIGHTFOOT, 5935 Greene St., Germantown, Pa. 1892
CHARLES D. LIPPINCOTT, Swedesboro, N. J..... Founder.
BAYARD LONG, Ashbourne, Pa..... 1906
MAYNE READ LONGSTRETH, 141 N. 19th St., Philadelphia, Pa..... 1892
DAVID N. MCCADDEN, Academy of Natural Sciences, Phila., Pa.... 1906
ALEXANDER MACELWEE, Fairmont, W. Va. 1892
DR. A. S. MARTIN, Norristown, Pa..... 1899
PROF. D. MORTFORD MELCHIOR, Girard College, Philadelphia, Pa... 1911
DR. A. W. MILLER, 400 N. 3rd St., Philadelphia, Pa..... Founder.
JOSEPH R. MUMBAUER, Pennsburg, Pa. 1911
PROF. MATTHEW C. O'BRIEN, Boys' High School, Philadelphia, Pa. 1904
W. REIFF NAUMAN, Sellersville, Pa. 1913
WILLIAM NELSON, 2114 Morris St., Philadelphia, Pa..... 1909
REV. J. P. OTIS, Sharpstown, Md..... 1912
JOHN E. OVERHOLTZER, Norristown, Pa..... 1892
FRANCIS W. PENNELL, New York Botanical Garden 1910
JOHN T. PENNYPACKER, 837 Market St., Wilmington, Del..... 1892
HAROLD W. PRETZ, 368 Union St., Allentown, Pa..... 1909
DR. W. H. REED, Norristown, Pa..... 1892
W. E. RIDENOUR, 433 E. Walnut Lane, Germantown, Pa. 1912
MISS LILLIAN ROSEMAN, 1839 Van Pelt St., Philadelphia, Pa..... 1900
SILAS L. SCHUMO, 880 N. 22nd. St., Philadelphia, Pa..... 1897
EDWIN I. SIMPSON, Academy of Natural Sciences, Philadelphia, Pa. 1907
BENJAMIN H. SMITH, 4704 Chester Ave., Philadelphia, Pa..... 1906
LEE SOWDEN, 3122 Midvale Ave., Philadelphia, Pa..... 1901
WITMER STONE, Academy of Natural Sciences, Phila., Pa..... Founder.
S. S. VAN PELT, 2110 Walnut St., Philadelphia, Pa..... 1902
ROBERT F. WELSH, 5335 Baynton St., Germantown, Pa..... 1909
T. J. WILKINSON, 4082 Lancaster Ave., Philadelphia, Pa..... 1907
FRANCIS WINDLE, West Chester, Pa. 1911

CORRESPONDING MEMBERS.

CHARLES C. BACHMAN, Slatington, Pa..... 1908
DR. GEORGE N. BEST, Rosemont, N. J..... 1906
EUGENE P. BICKNELL, New York City..... 1896
REV. J. S. BUNTING, Macon, Ga..... 1907
DR. NATHANIEL LORD BRITTON, New York Botanical Garden..... 1892
ELIZABETH G. BRITTON, New York Botanical Garden..... 1895
O. H. BROWN, Cape May, N. J..... 1908
STEWART H. BURNHAM, R. F. D. No. 2, Hudson Falls, N. Y. 1911
A. ARTHUR HELLER, Reno, Nev. 1893
GEORGE V. NASH, New York Botanical Garden..... 1905
W. A. POYSER, Hammond, Ind. 1906
DR. J. T. ROTHROCK, West Chester, Pa..... 1892
C. F. SAUNDERS, Pasadena, Cal..... 1893
DR. JOHN K. SMALL, New York Botanical Garden..... 1893
MRS. E. S. STARR, Ocean View, N. J..... 1897
HUGH E. STONE, Coatesville, Pa..... 1893
CHARLES VARNUM, Atco, N. J. 1912
DR. CAMPBELL E. WATERS, Washington, D. C..... 1904

DECEASED MEMBERS.

	Died.
FRANK L. BASSETT, Active.	
PROF. EDSON S. BASTIN, Honorary.....	April, 1897
DR. J. BERNARD BRINTON, Founder.....	December 6, 1894
ISAAC BURK, Honorary.....	March 30, 1892
WILLIAM M. CANBY, Honorary.....	March 10, 1904
JOEL J. CARTER, Corresponding.....	May 4, 1912
DR. WILLIAM HERBST, Honorary	December 22, 1906
BENJAMIN HERITAGE, Founder	August 19, 1912
PROF. ZEPHANIAH HOPPER, Active	July 21, 1913
ALBRECHT JAHN, Founder	February 6, 1905
PROF. JOHN M. MAISCH, Honorary.....	September 10, 1893
ISAAC C. MARTINDALE, Founder	January 3, 1893
THOMAS MEEHAN, Founder	November 18, 1901
DR. ISAAC S. MOYER, Honorary	September 7, 1898
DR. THOMAS C. PORTER, Honorary	April 27, 1901
PROF. FERRIS W. PRICE, Corresponding.....	September 22, 1909
JOHN H. REDFIELD, Honorary	February 27, 1895
DR. CHARLES SCHAEFFER, Active	November 23, 1903
LOUIS SCHNEIDER, Active	August 14, 1901
DR. SAMUEL P. SEESE, Active.....	1911
USELMA C. SMITH, Founder	April 2, 1902
CHARLES S. WILLIAMSON, Active.....	March 23, 1914

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No. 8 1924

BARTONIA

A BOTANICAL ANNUAL

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

FRANCIS W. PENNELL

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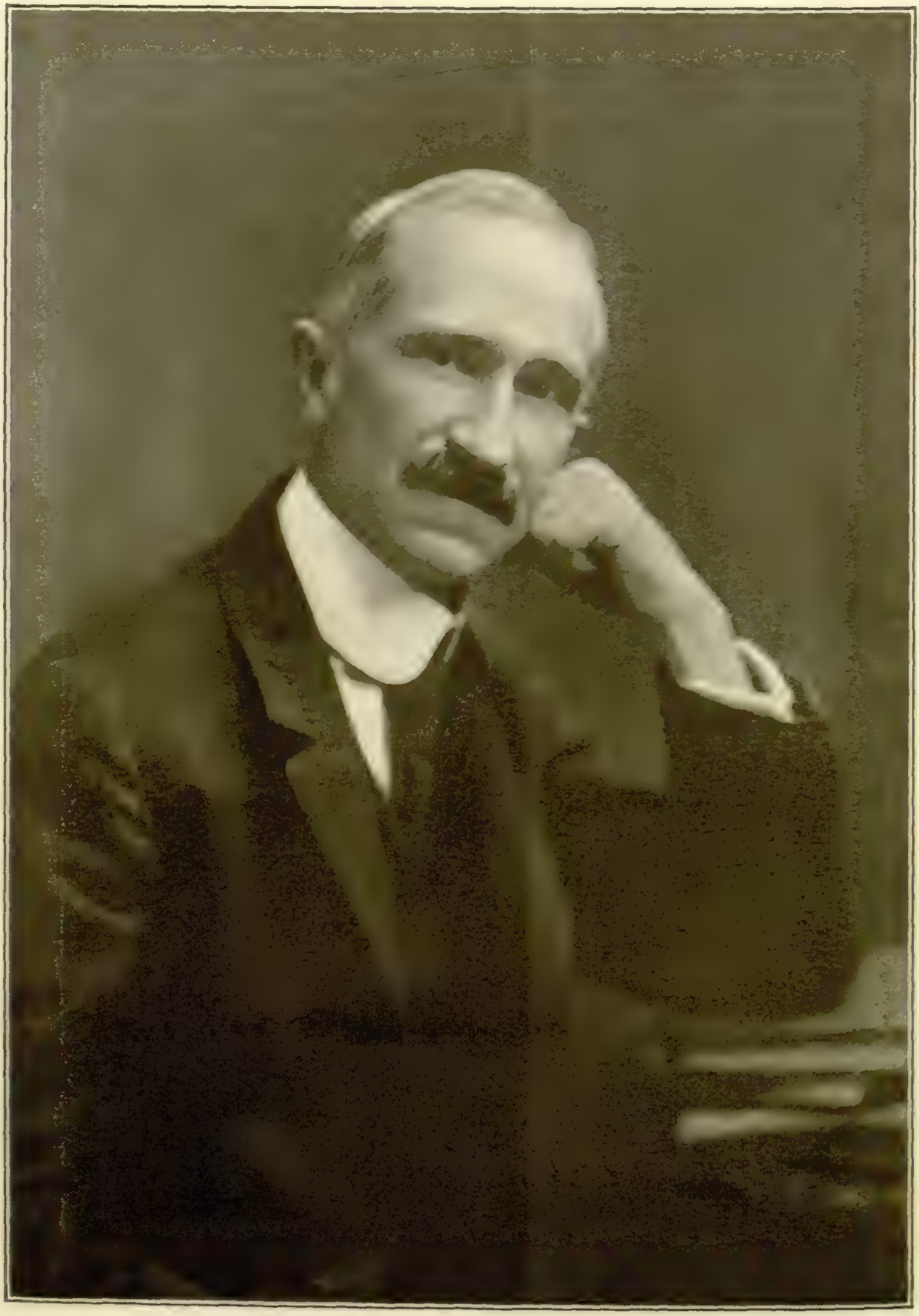

Stanwood Brown

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 8 PHILADELPHIA, PA. 1924

Stewardson Brown

WITMER STONE*

While technical knowledge and activity in research are admittedly necessary for the successful progress of a club such as ours there would be no club were it not for further qualities exhibited in the membership. There must be personalities that hold us together—that inspire respect and affection and weld bonds of friendship that will not yield with the lapse of time.

Stewardson Brown possessed such qualities in a marked degree and it is no detriment to his scientific knowledge to say that it will be in this connection that his memory will be cherished in the years to come by those whose privilege it was to be associated with him. And in the promotion of good-fellowship and in the cheerful and unselfish aid that he rendered to all, lies perhaps his greatest service to the Philadelphia Botanical Club.

I first became acquainted with Brown in the autumn of 1877. I had entered the Germantown Academy, and found among the other new boys who were to be my classmates, the

* Reprinted, with slight alterations, from "Cassinia" for 1920–21.

late Amos P. Brown, sometime Professor of Mineralogy and Geology in the University of Pennsylvania. Living not far from one another we became close friends, and through him I met his brother Stewardson, a few years his junior. The family of seven sons and two daughters resided with their parents at "Restalrig," one of the Logan properties near Wayne Junction, adjoining on the south the famous homestead "Stenton," rich in historic associations. It lay on the extreme eastern edge of Germantown and beyond it stretched miles of open country, with delightful bits of woodland here and there, and the Wingohocking Creek, then a clear open stream, flowing not far away. The surroundings were ideal for the development of a love for natural history; and the atmosphere of the home equally so. There was a general interest in out-door life in the family, and a love of hunting and fishing on the part of the father and elder brothers. A gun closet in the hall was ever ready to furnish the means of securing any rare bird that visited the neighborhood, while many mounted specimens graced the bookcases in the parlor. And life there was not bound about by narrow restrictions such as some parents feel it necessary to impose. There were flower beds, shrubbery, orchards and a large old-fashioned vegetable garden with a grape wall, and extensive hotbeds. In this enclosure each of the boys, so long as they desired, had a small patch of his own where flowers and early vegetables were raised.

In this environment Stewardson Brown was born April 29, 1867, and here he resided until the family moved to East Penn St., Germantown, in 1900.

He naturally developed an interest in nature, and a love of out-door sports—cricket, baseball, etc., for which ample opportunity was offered without leaving his home grounds. Especially however, was he attached to the garden and from constant association with the gardeners he attained at an early age a knowledge of cultivated and wild plants, trees and shrubs which formed the foundation of his later career.

Stewardson was the fifth son of Amos P. and Frances Brown and was descended from Henry Brown who emigrated from England to Haverhill, Mass., in 1639. One of his grandmothers was Elizabeth Stewardson, sister of Dr. Thomas Stewardson, an eminent physician, scientist and botanist of his time, and from the Stewardsons doubtless came the strong interest in natural history so manifest in Stewardson Brown as well as in his brother Amos.

We three boys had very many interests in common—a love of nature, of music and of out-door athletic exercises—and we became inseparable companions. Indeed for a period of more than ten years we spent almost our entire spare time at Restalrig or in the immediate vicinity mainly in collecting and studying specimens of plants, animals and minerals. Stewardson was preeminently the botanist of the party and Amos the geologist, although we each absorbed a healthy amount of knowledge upon all branches of natural history.

In 1882 in conjunction with my late brother Frederick D. Stone, Jr., and Brown's younger brothers, Herbert and Francis H., we formed the "Wilson Natural Science Association" which met in our house where a room had been transformed into a museum for the housing of our collections; and here weekly sessions were held and papers read with all the formality of a more serious organization. While our activities were admittedly very local in scope, I have since been impressed with the admirable basis that they afforded for our future work, better, I am inclined to think, than would have been derived from less concentrated work over a wider field. Our aim was to become familiar with all of the animal and plant life of that part of Germantown as well as the minerals and rocks, and I think we nearly succeeded.

For several seasons Stewardson and his brothers spent the months of July and August with an aunt at Pt. Pleasant, N. J., and there he became acquainted with the wonderful flora of the Pine Barrens as well as with the shore birds, marsh finches, gulls and fish-hawks, and with new and rare insects, washed up on the beach and the shore of the Manasquan River, and many

were the additions to our museum from this source. Together we visited my ancestors' homestead in central Chester Co., Pa., and in 1886 spent a week at York Furnace on the lower Susquehanna where we found a still different fauna and flora.

After leaving school in 1885, Stewardson Brown entered the offices of the Lehigh Valley Railroad where he remained until 1900 when he accepted the position of Assistant Curator at the Academy of Natural Science in charge of the herbarium, and there his real scientific career began.

The writer became connected with the Academy as early as March, 1888, and almost immediately Stewardson had begun to visit the institution becoming a member on January 27, 1891. He soon made the acquaintance of Dr. J. Bernard Brinton who was at that time heading a party of younger botanists on Sunday and holiday collecting trips to points in the neighborhood of Philadelphia.

On these excursions he met many of the men with whom he later became closely associated in the activities of the Botanical Section of the Academy and the Philadelphia Botanical Club. This Club was organized in 1892 by Dr. Brinton and the coterie of young botanists that he had brought together. Brown was the first secretary and in later years became the president.

His first interest had always been botany and the service he rendered the Academy in caring for the herbarium during a critical period of its history when the volunteer workers of earlier years were passing away and the entire arrangement of the collection and method of supervision had to be completetly revised, will probably never be fully realized. During his years of service in the herbarium he made the acquaintance of many botanists of other institutions, notably Dr. N. L. Britton who became a close personal friend. Brown also became affiliated with other societies, being elected a member of the Torrey Botanical Club, the Botanical Society of America and the American Association for the Advancement of Science, as well as Professor of Botany to the Pennsylvania Horticultural Society and lecturer on botany in the Ludwick Institute Courses.

He had a charm of character and a magnetism that drew to him many persons interested in plant life, beginners as well as those advanced in the study, and he soon took the place that Dr. Brinton had earlier filled as the head of those whose activities kept the Botanical Club in continued operation. He was editor of the Club's annual publication BARTONIA, and spared no effort to make the meetings attractive and instructive.

In the early days of the Club he introduced the members to the lower Susquehanna Valley which he had visited in former years, and later on made tours of Pike and Wayne and Somerset Counties, Pennsylvania, with C. F. Saunders the well-known botanical author, while with the writer he explored many parts of the New Jersey Pine Barrens.

In 1904 he visited the Florida Keys with H. W. Fowler, and in 1906 and again in 1908, traveled through the Canadian Rockies with Mrs. Chas. Schaffer, making valuable collections upon which was based his well-known volume on the flora of that region which was illustrated by reproductions of Mrs. Shaffer's paintings. A few years previously he published, in conjunction with Dr. Ida A. Keller, a handbook of the flora of Philadelphia and vicinity which was largely used in the city high schools. In 1910 Brown accompanied his brother to Jamaica and in 1911 was botanist on an expedition to Trinidad and Venezuela, organized by Mr. Francis E. Bond, one of his old schoolmates. He also made trips to Bermuda in 1905, 1909, 1912, 1913 and 1914 and to Porto Rico in 1915 in company with Dr. N. L. Britton.

On all of these expeditions valuable collections were obtained which greatly enriched the Academy's herbarium, while Brown's knowledge of plants was vastly extended. The constant care of the herbarium and his devotion to horticulture made him familiar with many exotics and the knowledge obtained in the tropics only increased his ability to identify specimens on sight—an ability which he possessed to a remarkable degree. This sort of botanical knowledge always appealed to him much more than the differentiation of the unlimited races and varieties of the present-day specialist.

Brown's interest in birds was only second to that in plants. In our school days in Germantown we learned the local birds together and the first specimen of many a species to grace our cabinet was secured by Stewardson. He became thoroughly familiar with all the local species in their various plumages and was a most accurate field ornithologist. We jointly compiled during these years the migration record for Germantown which went to the U. S. Dept. of Agriculture. The Delaware Valley Ornithological Club was founded soon after I came to the Academy and moved its meeting place to this institution in 1891. Brown was elected an Associate on October 6 of that year and became an Active Member January 7, 1897; served as Treasurer 1901–1907; as Vice-President 1908–12; and as President 1913–1915. He became an Associate of the American Ornithologists' Union in November, 1895, and took a prominent part in arranging for and managing the several meetings that were held in Philadelphia.

His technical contributions as we have already said were by no means the full measure of his worth to our Club. His cheerful smile and cordial greeting, his constant attendance at meetings so long as health permitted, and his never-failing assumption of responsibilities and proffer of assistance—these were the qualities that remain indelibly in our memory, qualities as precious as they are rare.

It is distressing to see so active a career cut short as was his by the serious illnesses which beset him in 1913 and 1915–1916 and by the accident that befell him in 1920 and culminated in his death on March 14, 1921. And yet the manly way in which he faced the inevitable and the continued cheerfulness with which he turned to find enjoyment in the limited field of his garden, where the cultivation of flowers and the study of such casual birds as came there had to take the place of trips farther afield, could not help but inspire greater respect and affection for him in the hearts of those of us who knew him best.

Rhythmic or Seasonal Appearance of Orchids

JOHN W. HARSHBERGER

On August 9, 1916, the writer with a class of botanical students from the Marine Laboratory at Cold Spring Harbor took an excursion across the Hempstead Plain from Westbury, Long Island, to Meadow Brook, then an unusually good botanizing ground. Soon after reaching the center of the plain our attention was directed to the great abundance of an orange-flowered orchid, which proved to be *Habenaria ciliaris.* It was found in the drier ground literally by the thousands. Excursions taken in subsequent years over the same ground and at about the same time did not enable us to secure any specimens the first two or three summers, but in 1920 and 1921 a few specimens were obtained in a locality to the east of Westbury, near Hicksville, Long Island, and on the Hempstead Plain. Was the great abundance of the yellow fringed orchid due to a rhythmic development of the plant, or was it due to the peculiarly favorable climatic, or seasonal conditions, that prevailed a few weeks prior to August, 1916?

Another case may be cited. On May 12, 1923, a botanical class from the University of Pennsylvania visited the hills at Gulph, Pennsylvania. On one of the slopes of the south-facing hill hundreds of the orchid, *Pogonia verticillata,* were found in all stages of development and the old capsules of the year 1922 also in considerable abundance. The writer does not recollect to have seen this orchid so strongly developed numerically in all of his botanical experience. Is this a case of rhythm, or of seasonal propitiousness? No doubt there are members of the Philadelphia Botanical Club who can cite instances of similar import.

Phenological observations, such as were made by Thomas Mikesell, would yield interesting information, if some local botanist would undertake to keep such a record uninterruptedly during a life time. In order to point the way, it may be well to note that the phenological record of Thomas Mikesell, or as much of it as has been preserved, will be found in Supplement No. 2, Monthly Weather Review, Weather Bureau, U. S. Dept. Agriculture, September 4, 1915.

Edible Greens

GEORGE JOHNSON

The country folk use a number of plants, which they find growing wild in the swamps, woods and fields, as greens. These are cooked the same as greens which are found in the markets. In the spring, leaves of *Erythronium americanum* are gathered in great quantities. *Portulaca oleracea* and *Cirsium pumilum* are also used. The latter is gathered when the rosettes are small and the spines have not become prickles. The German folk are particularly fond of these rosettes. In some sections the fronds of *Osmunda cinnamomea* and *O. claytoniana*, when six or eight inches high, are gathered and used the same as asparagus. Sometimes these are bunched and sold in the markets. *Phytolacca decandra* is a plant particularly sought. This is cut when about six inches high, bunched and offered for sale in the markets. Great quantities are offered in the commission market here in Chester. *Caltha palustris* is the one that is most offered for sale in the markets "down East." This is gathered when in bloom, and flowers and leaves are sold by the bushel. Most of the species of *Asclepias* are also used. These are gathered when about six inches high, or just about the time they may be readily broken off. *Rumex crispus* and *Taraxacum* need no more than mention. The bulbs of *Arisaema triphyllum* and *Claytonia virginica* are really very palatable when boiled. The flavor is not unlike that of the turnip. The leaves of *Oxalis acetosella* and *Rumex acetosella* are used where a piquant salad is desired. The seeds of *Malva rotundifolia* will give the same mucilaginous consistency to soups or stews as when gumbo is used.

It may be news to some to know that the humming bird lines its nest with the down that is on the fronds of *Osmunda.*

For the benefit of those who are subject to contact poison from *Rhus toxicodendron* or *R. vernix*, a tea made from *Impatiens biflora* and taken a few days before exposure to either of these plants, will render one immune. This has been tested and known to be a fact.

The Pollination of Two Tidewater Scrophulariaceae

FRANCIS W. PENNELL

Three times I had visited the sandy tidal shore of the Delaware River above Delair, Camden County, New Jersey, in the hope of finding the peculiar little Scrophulariacea, *Hemianthus micranthus* (Pursh), with opened flowers. Although I always found the plants with buds and young fruits, each time I had failed to find the open corollas and each time I thought that the conditions at the hour of my short visit must have been unfavorable. I knew however that Nuttall, who had very carefully described and illustrated this plant (under the name of *Hemianthus micranthemoides* Nutt.) in 1817 in the first volume of the Journal of the Academy of Natural Sciences, had noted and figured the corollas as curiously incoiled. I knew, on the other hand, that all the remaining species of this genus, none of which grow within tidewater, however—*Hemianthus glomeratus* (Chapm.) of southern Florida, *H. callitrichoides* Griseb. of the West Indies, etc.—bore well-developed corollas which I had repeatedly seen fully expanded on the dried specimens examined. Never having seen open corollas of our local *micranthus* even in the herbarium made me the more desirous of finding them. So on September 11, 1923, I once more visited the tidal shore above Delair.

The morning was ideal with scarcely a cloud in the sky; low tide occurred between 8:00 and 9:00 A. M. and the incoming high tide was not noted until after 11:00 A. M.; the conditions were perfect for affording light, warmth and sufficient freedom from water to permit of the ready flowering of the plants that grow between high and low tide-levels. Again

I found *Hemianthus micranthus,* but although I waited until the water came up to cover it the corollas did not expand but remained incurled and scarcely looser than as if the plant were only in bud. Obviously, the flower of this species does not open more than had been observed by Nuttall over a century ago. Yet, it was evident that it was setting fruit successfully, and the conclusion seemed reasonable that the flower must pollinate itself.

Many times more abundant than the *Hemianthus* on the tidal flat at Delair is the broad-leaved form of *Ilysanthes* which I described in 1919 as *I. dubia inundata* Pennell. Opened corollas of this were also a desideratum, and I watched it closely. The plant was so plentiful that I must have observed thousands of its flower-buds and young fruits. But the watch was no more successful. The tide came in and covered the plants deep under water yet not a single corolla had opened! Indeed, in *Ilysanthes* I had singular proof that the flowers do not expand, as in the latter part of the morning the unopened corollas were frequently seen dropping from the calyces. Yet the species, *Ilysanthes dubia* (L.) which grows in swamps inland, regularly bears expanded corollas nor have I ever seen the corollas fall without opening. *Ilysanthes dubia inundata* was setting fruit abundantly, and it seemed clear that here was a very successful case of self-pollination.

When one considers the peculiar conditions under which these two plants live, the development of the habit of self-pollination seems a singularly fitting adaptation. Twice during each day of twenty-four hours they are exposed to the air and possibly to insects, and twice submerged beneath water. Moreover these periods of emergence occur at different times during the day and night, through a monthly cycle, while many plants and doubtless their insect-pollinators are active normally only during a definite part of each day. Probably also, the small insects that would visit such small flowers as those of *Hemianthus* and *Ilysanthes* do not fly far and would scarcely be apt to canvas with any thoroughness an extensive tidal flat between tides. Hence to these Scrophulariaceae and

doubtless also to many other small-flowered plants of these flats self-pollination would be of very material advantage.

With this thought in mind it would be of much interest to investigate the flora of these flats with care. Small and inconspicuous-flowered members of families which normally have large and conspicuous, insect-pollinated flowers, are always under suspicion of being derivative species perpetuating today either by wind or by self-pollination. Another abundant plant of the Delair flat is *Isnardia palustris*, closely akin to the conspicuous Epilobiums; in *Isnardia* the four stamens habitually incurve and deposit their burdens of pollen firmly against the large stigma. *Eriocaulon parkeri* Robinson was also seen, and the tight heads of this, with the styles closely growing against the flower-cluster, suggest that this may be really a tidewater derivative of *E. septangulare* With. The problem of the pollination of these plants of tidal flats is but one of many now calling for volunteers in what should prove a most productive, as well as most fascinating, field of botanical investigation.

Some Changes in the Aspect of the List of the Philadelphia Flora

BAYARD LONG

The most recent comprehensive local flora covering the Philadelphia area (in greater part) is Mr. Norman Taylor's *Flora of the Vicinity of New York,* published in 1915. Since that date, it is almost needless to say that there has been added to the flora of this district a constantly increasing number of alien species introduced and the usual series of indigenous species which continued exploration of any region brings forth. The reidentification of misnamed material in the course of critical studies also has added some new names. But the aspect of the local flora list has been modified especially by many changes in plant-names due to taxonomic and nomenclatorial studies. In some part these are the results of a more critical delimitation of species, and denote plants which have long been long confused with other species, but which now, because of the work of various students, are to be recognized as distinct. In other part they are due to a reexamination of the type material or a recent study of the original description. Again, the cause may be the finding of overlooked names in obscure or neglected works, and the consequent action of priority. Any or all of these causal elements may enter into a case of name-change, depending largely upon its scope or complexity. The simple case of an earlier name being found for a plant of course changes only one name. But the reidentification of a type specimen or the reinterpretation of an original description will cause changes in the names of two plants. While, if in addition, critical segregation of species is found necessary there may occur three or more

changes. These plants may bear old names brought forth from obscurity, or ones new to science.

These names thus appear, as yet, only in journals, or in part in the more recent floras of other local areas, and have largely escaped the attention of our Philadelphia amateurs who are dependent chiefly upon the current manuals—the *New Gray's Manual* of 1908 and Britton and Brown's *Illustrated Flora* of 1913 (both unfortunately beginning to show age). It would seem of some value to attempt to bring together for ready reference some of the more important and more firmly established of these plant-names—especially those relating to plants which are most liable to be met by the general collector and either fail of identification or suffer misnaming.

The number of changes proposed in the names of our plants in even the short period of less than ten years, is so very considerable that in a brief account of some of them, such as this, no attempt has been made to consider generic or varietal changes, important and interesting as many of them are, but only some of the more generally accepted alterations in specific names. The general basis for the inclusion of any name in the following list is its recognition since the appearance of Taylor's *Flora* (or its lack of proper recognition in that work). Besides the reference to the original place of description or the recent discussion of the plant, there is given a brief indication of the critical points involved in each case and the reasons necessitating a change. A few cases are inserted of corrected identifications which have added unfamiliar names to our flora.

Botrychium angustisegmentum (Pease & Moore) Fernald

Fernald, Rhodora 17: 87. 1915

Careful study by Fernald of the American plant which was segregated several years ago as *B. lanceolatum* var. *angustisegmentum* Pease & Moore shows that it differs in essentially all its characters from *B. lanceolatum* as well as belongs to a

quite distinct life-zone. True *B. lanceolatum* is a subarctic and arctic-alpine species while *B. angustisegmentum* is a plant of our rich deciduous Appalachian forests.

PTERETIS NODULOSA (Michx.) Nieuwl.

Nieuwland, Am. Mid. Nat. 3: 194. 1914
Fernald, Rhodora 17: 161. 1915

The uniting of the American Ostrich Fern with the European has been general and unquestioned for many years, but Fernald's investigation of the two plants shows them to differ in nearly all details and to be quite isolated from each other. The earliest name for our plant is *Onoclea nodulosa* Michx. Nieuwland has shown that the earliest valid name for the Ostrich Ferns is the obscurely published *Pteretis* of Rafinesque.

PTERIDIUM LATIUSCULUM (Desv.) Maxon

Maxon, Am. Fern Journ. 9: 43. 1919

Our eastern Braken, commonly called *P. aquilinum,* is considered by Maxon to differ sufficiently from the European type in characters of blade and indusium to be recognized as a distinct species. It was long ago differentiated by Desvaux as *Pteris latiuscula.*

POLYPODIUM VIRGINIANUM L.

Fernald, Rhodora 24: 125. 1922

A detailed study of *Polypodium vulgare* L. in North America by Fernald clearly demonstrates that our common *Polypodium* is not identical with *P. vulgare* (by Linnaeus restricted exclusively to Europe) but is a distinct species, which was designated by Linnaeus as *P. virginianum.* There are excellent distinguishing characters in the rootstock and its scales, the pinnae and their veining, and the position of the sori.

SELAGINELLA APODA (L.) Fernald

Fernald, Rhodora 17: 68. 1915

Fernald has discovered that our common species was named *Lycopodium apodum* by Linnaeus. Spring, in transferring

it to *Selaginella* as *S. apus* took the liberty of altering the specific name, but certainly *apus* is not the feminine form of a neuter *apodum*. The correct name should be reassigned to the plant.

POTAMOGETON FILIFORMIS Pers.

St. John, Rhodora 18: 121. 1916

St. John's work on certain pond-weeds shows the local occurrence of an unsuspected species. Our plant, var. *borealis* (Raf.) St. John, has been confused with *P. pectinatus*—from which it differs in its sessile stigma and beakless fruit. It occurs in Cedar Creek, near Allentown, Pennsylvania, and should be sought elsewhere in calcareous waters.

NAJAS GUADALUPENSIS (Spreng.) Morong

Fernald, Rhodora 25: 107. 1923

In studying the species of *Najas* in northeastern America Fernald finds that the austral *N. guadalupensis* has a much wider range northward than has been supposed. It occurs at several stations in the local area. It has been confused with *N. flexilis* but is readily distinguished by its shorter, stouter style and the opaque, clearly reticulated seed.

VALLISNERIA AMERICANA Michx.

Fernald, Rhodora 20: 108. 1918

Because of marked differences in the spathe and scape of the staminate inflorescence, Fernald points out that we should recognize the American plant as distinct from the European *Vallisneria spiralis* L.—the traditional name of the plant. Its range further indicates the unlikelihood of its identity with the Old World plant.

ECHINOCHLOA MURICATA (Michx.) Fernald

Fernald, Rhodora 17: 105. 1915
Wiegand, Rhodora 23: 49. 1921

An indigenous species is to be separated from the introduced *E. Crusgalli*, following the critical work on the group by Fernald. The native American plant was first recognized by

Michaux as *Panicum muricatum*. It differs in having the trichomes of the spikelet divergent, coarser and stiffer, with a pustular base, giving the inflorescence a very bristly appearance. In true *E. Crusgalli* the hairs are fine, appressed and not thickened at the base.

CHAETOCHLOA LUTESCENS (Weigel) Stuntz

Stuntz, U. S. Bur. Pl. Ind. Inv. Seeds 31: 36 and 86. 1914

It is pointed out by Stuntz that *Panicum glaucum* L. should be applied to the pearl millet which has been called *Pennisetum americanum* (L.) Schum. The oldest available name for the Yellow Foxtail, commonly known as *Chaetochloa* (or *Setaria*) *glauca*, is *Panicum lutescens* Weigel.

CHAETOCHLOA GENICULATA (Lam.) Millsp. & Chase

Hitchcock, Contr. U. S. Nat. Herb. 22: 168. 1920

This name is now taken up by Hitchcock for our common perennial Foxtail, recently referred to *C. imberbis*. It would appear that our plant is inseparable from the widely distributed tropical *C. geniculata*.

CENCHRUS PAUCIFLORUS Benth.

Chase, Contr. U. S. Nat. Herb. 22: 67. 1920

The name *C. carolinianus* Walt. has been applied to this plant for some years. But, according to Chase, Walter's diagnosis does not agree with its characters, the type specimen is nonexistent, and it has not been found in Walter's region. Consequently, the name cannot be applied with certainty and is to be rejected. A name of Bentham's is taken up as the earliest available.

MUHLENBERGIA FOLIOSA (R. & S.) Trin.

Scribner, Rhodora 9: 19. 1907
Weatherby, Rhodora 19: 109. 1917

This is a well marked species confused especially with *M. mexicana*, from which it is at once separated by its culms minutely puberulent below the nodes. (The culms in *M. mexicana* are smooth throughout.) It occurs in natural swales

and swamps and has none of the weed-character of *M. mexicana*. It was brought to attention by F. Lamson-Scribner some years ago but has not received the recognition it deserves.

AGROSTIS PALUSTRIS Huds.

Piper, U. S. Dept. Agr. Bull. 692: 2. 1918
Hitchcock, U. S. Dept. Agr. Bull. 772: 128. 1920

According to Piper and to Hitchcock the name *Agrostis alba* L. is of doubtful application and should be dropped. It is believed that in the original publication the name is founded solely on a citation referring to a Poa (apparently *P. nemoralis*). The next oldest name satisfactorily identified is that of Hudson.

AGROSTIS ANTECEDENS Bicknell

Bicknell, Bull. Torr. Bot. Club 35: 473. 1908

This segregate from *A. hiemalis*, proposed by a most discriminating botanist, deserves more careful consideration than it has yet received. Among many technical characters it differs in the branches of the panicle arising well above the middle and in having smaller spikelets more clustered at the ends of short branchlets. The flowering period is distinctive; it begins to bloom in May—while *A. hiemalis* rarely flowers before July.

AMMOPHILA BREVILIGULATA Fernald

Fernald, Rhodora 22: 70. 1920

The common Beach Grass of Atlantic America, which has been universally identified with *Ammophila arenaria* of Europe, is, Fernald discovers, a thoroughly distinct species. It differs in essentially all its technical characters, the most striking of which is its short, rounded coriaceous ligule (in the European plant very prolonged, lance-attenuate and scarious). It seems not to have been previously named.

SPARTINA ALTERNIFLORA Loisel.

Fernald, Rhodora 18: 179. 1916

It is shown by Fernald that our American plant united by some with the European *S. stricta* is quite unlike it in many

definite characters, but that the northern form is, however, inseparable from European material of *S. alterniflora* Loisel. This latter name should be taken up for our species instead of the later published *S. glabra* Muhl. (the southern form), as has been maintained by others.

ERAGROSTIS CILIANENSIS (All.) Link.

Lutati, Malpighia 18: 380. 1904
Hubbard, Philipp. Journ. Sci. Bot. 8: 159. 1913

The oldest valid name, following the investigation of F. Viguolo Lutati (and as further pointed out by Hubbard) for the species called *E. megastachya* (or *E. major*) is *Poa cilianensis* All.

ERAGROSTIS CAROLINIANA (Spreng.) Scribn.

Scribner, Mem. Torr. Bot. Club 5: 49. 1895
Ascherson and Graebner, Syn. Mitteleur. Fl. 2[1]: 374. 1900

The *Poa caroliniana* of Sprengel is now rather generally conceded to be properly identified with the later-published (and familiar) *Eragrostis Purshii* Schrad. This was the opinion of Scribner expressed some years ago.

ERAGROSTIS PEREGRINA Wiegand

Wiegand, Rhodora 19: 93. 1917
Long, Rhodora 21: 133. 1919

The recognition first by Wiegand of the specific distinctness of this grass has brought to attention a very clearly marked plant. The absence of auricular hairs on the upper sheaths, the dense panicle and short pedicels easily separate it from *E. pilosa* and *E. caroliniana.*

POA CUSPIDATA Nutt.

Merrill, Rhodora 4: 145. 1902

Some years ago Merrill showed that Nuttall's name was the proper one for the grass called *P. brevifolia* or *P. brachyphylla,* and it is now being taken up by grass students. There is an added interest in the case to Philadelphia botanists because Nuttall's plant was found "on the high rocks bordering

the Schuylkill at Lemon-hill, and also on those a mile south of the falls, frequent.'' (Barton. Fl. Phila. 1: 61.)

POA PALUSTRIS L.

Ascherson and Graebner, Syn. Mitteleur. Fl. 2¹: 416. 1900

It is pointed out by Ascherson and Graebner that *Poa palustris* L. is unquestionably the same as the plant called *P. triflora* Gilib. and has many years' priority. This view is accepted in the more recent European works.

PANICULARIA MELICARIA (Michx.) Hitchc.

Hitchcock, Contr. U. S. Nat. Herb. 12: 149. 1908

A study of the type specimen of *Panicum melicarium* Michx. by Hitchcock has shown it to be the plant known recently as *Panicularia Torreyana* (Spreng.) Merr. The older name of Michaux must be accepted for our species.

BROMUS ALTISSIMUS Pursh

Wiegand, Rhodora 24: 89. 1922

In a recent study of *Bromus ciliatus* and its immediate allies Wiegand demonstrates that *B. incanus* (*B. purgans incanus*) has all the technical characters of *B. altissimus*, being separable from it only by the pubescence on the sheaths and nodes. Our late-blooming plant should be referred to *B. altissimus* Pursh, or *B. altiss.* f. *incanus* (Shear) Wiegand. It is not to be confused with the early-flowering *B. purgans* L.

ELYMUS RIPARIUS Wiegand

Wiegand, Rhodora 20: 84. 1918

Much of the previous difficulty in *Elymus* has been due to the failure to recognize this species recently described by Wiegand. For years it has formed a large portion of the material passing as *E. canadensis*. It is an exceedingly well-marked plant with straight awns, narrow glumes and glabrous foliage, of frequent occurrence in rich wooded habitats of the Piedmont region, especially along streams.

ELYMUS ROBUSTUS Scribn. & J. G. Smith

Wiegand, Rhodora 20: 89. 1918

E. canadensis seems to be probably identified, Wiegand states, with a Canadian plant having broad, thin leaves, villous above. Our plant with firm, smooth leaves becoming involute, which has been passing under this name, he is unable to separate from *E. robustus*, a species previously not considered to extend so far east.

ELEOCHARIS CAPITATA (L.) R. Br.

Blake, Rhodora 20: 23. 1918

Scirpus capitatus L. was based almost entirely upon a Gronovian reference which in turn is based upon a Clayton specimen in the British Museum. Blake has examined this material and finds that it is the plant now known as *Eleocharis tenuis* (Willd.) Schultes. The familiar name of our common sedge must now fall into synonomy.

FIMBRISTYLIS MUCRONULATA (Michx.) Blake

Blake, Rhodora 20: 24. 1918

Scirpus autumnalis L. was based solely upon a Clayton number well represented in both the Linnaean Herbarium and the Clayton Herbarium. According to Blake this is the plant known in recent years as *F. Frankii* Steud. (or *F. geminata* (Nees.) Kunth.). The name *Fimbristylis autumnalis* (L.) R. & S. must accordingly be transferred to this species. The oldest name for the plant long erroneously so called seems to be *Scirpus mucronulatus* Michx.

RYNCHOSPORA MACROSTACHYA Torr.

Fernald, Rhodora 20: 138. 1918

Upon the basis of heretofore overlooked characters, Fernald has further attested the specific distinctness of *R. macrostachya* from *R. corniculata*, with which it has been united recently by Britton.

RYNCHOSPORA INUNDATA (Oakes) Fernald

Fernald, Rhodora 20: 138. 1918

In his study of the large-fruited series of Rynchosporas Fernald shows conclusively that the plant formerly called *R. macrostachya* var. *inundata* is a distinct species. It differs constantly from both *R. macrostachya* and *R. corniculata* in marked vegetative as well as fruit characters.

RYNCHOSPORA CAPITELLATA (Michx.) Vahl.

Blake, Rhodora 20: 25. 1918

The Clayton specimen on which is based the Gronovian citation for *Schoenus glomeratus* L. is the southern plant which was named *Rynchospora paniculata* by Gray and has of late years been treated as a variety of *R. glomerata.* This plant is found by Blake to have numerous constant characters and to be worthy of specific recognition. The name *R. glomerata* (L.) Vahl. must be restricted to it. The first name which can be taken up for the more northern species which has long passed for *R. glomerata* seems to be *Schoenus capitellatus* Michx.

CAREX CONVOLUTA Mackenzie

Mackenzie, Bull. Torr. Bot. Club 43: 423. 1916

Mackenzie has found that there are three well marked plants included under *C. rosea,* as commonly treated. He identifies true *rosea* with a wide-ranging rather slender plant having long, straight, not twisted stigmas, and *radiata* with a very slender Alleghenian plant having short and twisted stigmas. There is a third plant, common and widely distributed, which is much stouter than these two. It has wide leaves and short, stout, twisted stigmas and has been named appropriately *C. convoluta* by Mackenzie.

CAREX CONTIGUA Hoppe

Mackenzie, Bull. Torr. Bot. Club 50: 346. 1923

Mackenzie maintains, in convincing argument, that the name *Carex muricata* L. is to be taken up for the plant referred to *C. stellulata* Good. and more recently *C. echinata*

Murr. With this disposition of the name our introduced species which has been passing for *C. muricata* has become *C. contigua* Hoppe.

CAREX TENERA Dewey

Mackenzie, Bull. Torr. Bot. Club 42: 603. 1915

From the complex of forms included under *Carex straminea* in our manuals Mackenzie has separated out as genuine *C. straminea* Willd. a plant with obovate perigynia and a southerly range. Another plant with ovate perigynia and a more northerly range also proves to be well marked. This is the plant that was described by Dewey as *C. tenera.* It enters the northern edge of our local area.

CAREX BREVIOR (Dewey) Mackenzie

Mackenzie, Bull. Torr. Bot. Club 42: 604. 1915

Mackenzie has demonstrated that the genuine *Carex festucacea* Schkuhr is a close ally of *C. straminea* Willd. (with which it has been confused) and not the plant with large perigynia (over 4 mm. long) described under the name in recent manuals. *C. festucacea* is retained by Mackenzie (in a new sense) as a valid species and to the large fruited plant the name *C. brevior* has been applied.

CAREX CUMULATA (Bailey) Mackenzie

Mackenzie, Bull. Torr. Bot. Club 49: 364. 1922

The plant described by Bailey as *C. straminea* var. *cumulata* (and in recent years placed under *C. albolutescens*) is shown by Mackenzie to have several constant and well-marked points of difference as well as a distinctive range, and is clearly entitled to specific rank. Its perigynia are nerveless ventrally, which character readily distinguishes it from *C. albolutescens* of the manual descriptions.

CAREX LONGII Mackenzie

Mackenzie, Bull. Torr. Bot. Club 49: 372. 1922

The attention of Mackenzie has been directed by Long to the fact that the type material of *Carex albolutescens* Schwein.,

in the Philadelphia Academy, is *C. straminea* Willd. Study of the case has shown that it was necessary to give a new name to this characteristic coastal plant, for years erroneously identified.

CAREX RICHII (Fernald) Mackenzie

Mackenzie, Bull. Torr. Bot. Club 49: 361. 1922

The inland relative of the salt marsh *Carex hormathodes* described by Fernald as var. *Richii* is well deserving of the specific rank recently accorded it by Mackenzie. It not only occurs in fresh water swamps and has a more restricted range but it has excellent diagnostic characters—the suborbicular spreading perigynia being perhaps the most distinctive.

CAREX RUGOSPERMA Mackenzie

Mackenzie, Bull. Torr. Bot. Club 42: 621. 1915

A careful study of Schkuhr's plate of *Carex umbellata* has convinced Mackenzie that Schkuhr had the plant with short-beaked perigynia, var. *brevirostris* Boott or *C. abdita* Bicknell of recent treatments. The plant with long beak, being without a name, has been renamed by Mackenzie. This view has received general acceptance.

CAREX STRICTIOR Dewey

Mackenzie, Bull. Torr. Bot. Club 42: 405. 1915

A segregate from our common Tussock Sedge, *Carex stricta,* has been recognized by Mackenzie. This plant grows in great beds and does not form stools. It can be readily recognized in the field but less easily from the usual run of herbarium specimens (without roots and stolons). This species is *C. strictior* Dewey.

CAREX MITCHELLIANA M. A. Curtis

Weatherby, Rhodora 25: 17. 1923

This name is taken up by Weatherby for a very interesting plant of the Coastal Plain and Piedmont which has been confused with *C. crinita* and its ally *C. gynandra.* It differs from these in its lenticular, granular perigynia and plane achenes.

JUNCUS SUBCAUDATUS (Engelm.) Coville & Blake

Coville and Blake, Proc. Biol. Soc. Wash. 31: 45. 1918

The distinctive characters of this plant, both in habit and in seed, have been long recognized and, as Coville and Blake have commented, it is surprising that it has not been granted previously the specific recognition it undoubtedly deserves.

POLYGONATUM PUBESCENS (Willd.) Pursh

Farwell, Bull. Torr. Bot. Club 42: 247. 1915
Gates, Bull. Torr. Bot. Club 44: 117. 1917

Farwell calls attention to the fact that Walter's *Convallaria biflora* clearly calls for a plant with glabrous foliage. *Polygonatum biflorum* (Walt.) Ell. is thus the earliest name for the various forms of Solomon's Seals with smooth leaves, for which the name *P. commutatum* has been in most common use recently. The plant (or the group of forms) with leaves pubescent beneath must take up the very appropriate name of Willdenow.

SMILAX PULVERULENTA Michx.

Pennell, Bull. Torr. Bot. Club 43: 420. 1916

This is a clearly distinct species which has been restored to its proper specific rank by Pennell. It is easily distinguished from *S. herbacea* by the green, shining, pulverulent undersurface of the leaves and the black berries. It blooms ten days to two weeks earlier than *S. herbacea* and has a much more restricted range.

DIOSCOREA GLAUCA Muhl.

Bartlett, U. S. Dept. Agr. Bull. 189: 17. 1910

This well marked southern species, long confused with *D. villosa*, has been restored to our recognition by the critical work of Bartlett. It differs in having a thick, knotted rootstock, the lower leaves in whorls of four to seven and the foliage glaucous beneath. It reaches our area in the lower Susquehanna Valley.

QUERCUS MAXIMA (Marsh.) Ashe

Sargent, Rhodora 17: 39. 1915
Sargent, Rhodora 18: 45. 1916

From the critical study of the original description, plates and material concerned Sargent concludes that *Quercus rubra* L. is the name of the tree which has been commonly called *Q. falcata* Michx. (He notes that in the Southern States this is always called Red Oak!) Marshall's name *maxima* seems to be the earliest clearly referring to our common northern Red Oak.

QUERCUS MONTANA Willd.

Sargent, Rhodora 17: 40. 1915

It seems necessary, following the arguments of Sargent, to restore the name *Quercus Prinus* L. to the tree commonly called *Q. Michauxii* Nutt. and adopt for the Rock Chestnut Oak the name of *Q. montana* Willd., the name used by Pursh, Gray and others.

POLYGONUM ROBUSTIUS (Small) Fernald

Bicknell, Bull. Torr. Bot. Club 36: 455. 1909
Fernald, Rhodora 23: 146. 1921

The plant described by Small as *Polygonum punctatum* var. *robustius* is clearly a definite species, as recognized by Bicknell and later by Fernald. It differs constantly, throughout an extended range, in vegetative as well as fruit characters and in a distinctly later flowering-season. It is readily distinguished by its very robust habit and the greater size of all its parts.

POLYGONUM GLAUCUM Nutt.

Fernald, Rhodora 15: 69. 1913

The Seaside Knotweed of the Atlantic United States, as brought out by Fernald, is to be distinguished from *P. maritimum* of the Mediterranean region. Our plant is an annual with less stout branches, lower internodes longer, stipules shorter and achenes distinctly smaller; the Old World species is suffruticose. Nuttall early recognized the American plant as distinct.

SALICORNIA PERENNIS Mill.

Standley, N. A. Fl. 21: 82. 1916.
Standley, Bull. Torr. Bot. Club 44: 426. 1917

The common perennial *Salicornia* of the Atlantic coast was not distinguished by the early writers from the Old World species, but in recent years all American botanists have recognized the American plant as distinct, under the name *S. ambigua* Michx. Standley, the most recent monographer of the family, can find no character by which to distinguish *S. ambigua* from the common Old World plant now called *S. perennis.*

HEPATICA AMERICANA (DC.) Ker.

Fernald, Rhodora 19: 45. 1917

Our American plant commonly called *Hepatica triloba* has long been known to possess smaller flowers and rounder-lobed leaves than the European species with which it has been identified. With the discovery by Fernald of distinctive achene characters it seems that our plant is an endemic American species. Its earliest specific name proves appropriately to be *H. americana.*

AMELANCHIER LAEVIS Wiegand

Wiegand, Rhodora 14: 137. 1912

It is now generally recognized, following Wiegand, that true *Amelanchier canadensis* is a plant having the leaves densely white-tomentose when young. There is an allied plant, well marked in having the leaves essentially glabrous from the first and longer pedicels. This has been named *A. laevis* by Wiegand and should be distinguished from *A. canadensis.*

PRUNUS DEPRESSA Pursh

Fernald, Rhodora 25: 69. 1923

After careful investigation Fernald makes it clear that *P. pumila* L. is the upright, narrow-leaved shrub of the Great Lake region. He distinguishes this plant by various characters from the northeastern prostrate, trailing shrub of river

shores. For this latter plant, well known in our area, the appropriate name of Pursh is to be taken up.

PRUNUS SUSQUEHANAE Willd.

Fernald, Rhodora 25: 71. 1923

In studying the descriptions of the various Sand Cherries it becomes apparent, Fernald finds further, that the earliest and entirely valid name for the shrub which was described as *P. cuneata* by Rafinesque is *P. susquehanae* Willd. The plant is clearly designated in Willdenow's description and is well known from the Susquehanna region.

CROTONOPSIS ELLIPTICA Willd.

Pennell, Bull. Torr. Bot. Club 45: 477. 1918

True *C. linearis* Michx. has been shown by Pennell to be the southern plant redescribed in 1895 by Nash as *C. spinosa.* Our more northern plant takes up the name *C. elliptica* Willd.

ELATINE MINIMA (Nutt.) Fisch. & Meyer

Fernald, Rhodora 19: 10. 1917

In a critical study of *Elatine,* Fernald demonstrates that we have two distinct species in the Atlantic States which have been passing under the customary name *E. americana.* These differ constantly not only in seed characters but in floral symmetry and foliage. True *E. americana* is a plant characteristic of wet clayey banks and tidal flats, having larger, broader leaves and trimerous flowers. The other species, well described and illustrated by Nuttall as *Crypta minima* is our smaller plant of sandy or gravelly pond-margins, with narrow, sessile leaves. It has dimerous flowers.

CIRCAEA LATIFOLIA Hill

Fernald, Rhodora 17: 222. 1915
Fernald, Rhodora 19: 85. 1917

For many years the customary identification of our American plant with the European *C. lutetiana* has not been questioned, but the older botanists recognized that it was not identical with that species. Fernald has found that the plants

differ in many important characters. They are also quite isolated geographically. Our species apparently was given a specific name as early as 1756 by John Hill.

KNEIFFIA PERENNIS (L.) Pennell

Pennell, Bull. Torr. Bot. Club 46: 372. 1919
Blake, Rhodora 25: 47. 1923

In a revision of *Kneiffia*, Pennell has replaced the familiar *K. pumila* with *K. perennis*. The equation of *Oenothera pumila* L. (1762) and the older *O. perennis* L. (1759) had been made in the Index Kewensis but overlooked by all students of our northeastern flora.

SIUM SUAVE Walt.

Blake, Rhodora 17: 131. 1915

Walter's species, although there is no verifying specimen so named in his herbarium, is evidently the same as *Sium cicutaefolium* J. F. Gmel., according to Blake, and has three years' precedence.

AZALEA ROSEA Loisel.

Rehder, Pub. Arnold Arb. No. 9: 138. 1921
Small, N. A. Fl. 29: 42. 1914

True *Azalea canescens* Michx. is a plant of the southern Coastal Plain, as has been recognized by both Small and Rehder. The earliest name for the Alleghenian species which has been passing as *A. canescens* seems to be *A. rosea* of Loiseleur-Delongchamps.

SABATIA DIFFORMIS (L.) Druce

Blake, Rhodora 17: 50. 1915

The Clayton type of *Swertia difformis* L. has been examined by Blake in the British Museum and found to be the plant long known as *Sabbatia lanceolata* (Walt.) T. & G. Its identity was early noted by Pursh but the name has failed heretofore to be taken up. *S. difformis* must replace *S. lanceolata*.

GENTIANA CLAUSA Raf.

Fernald, Rhodora 19: 147. 1917

There has long been difficulty in separating *Gentiana Saponaria* and *G. Andrewsii*. A study by Fernald has clearly demonstrated that the trouble lies in the failure to recognize a third distinct species, combining the foliage-characters of the latter with the corolla-characters nearly of the former. It has acuminate leaves, corolla with broad elongated lobes, calyx-lobes broad, and was described as *G. clausa* by Rafinesque.

CUSCUTA PENTAGONA Engelm.

Yuncker, Univ. Ill. Biol. Monographs Nos. 2 and 3: 50. 1921

The name *C. arvensis* Beyrich (long applied to one of our common species) was published in synonomy without description and is rejected by Yuncker, the present monographer of the group, for the properly published name of Engelmann.

SCUTELLARIA EPILOBIIFOLIA Hamilton

Fernald, Rhodora 23: 85. 1921

The American plant, as seen from Fernald's study, differs strikingly from the European *S. galericulata* in its broader nutlets which are coarsely pebbled or almost warty, its larger, more showy corolla, and its more copious pubescence. The Old World plant has nutlets finely and sharply muriculate.

SCROPHULARIA LANCEOLATA Pursh

Pennell, Torreya 22: 81. 1922

In a recent discussion of the identity of Pursh's *Scrophularia lanceolata*, Pennell concludes that the name is properly taken up for the plant which has been known as *S. leporella* Bicknell. The description is quite satisfactory but the well-known difficulty concerning the erroneous flowering-date given (that of *S. marilandica*) is considered by Pennell to be an unfortunate interchange of data which should not cause the name to be rejected.

GRATIOLA NEGLECTA Torr.

Blake, Rhodora 20: 65. 1918

Gratiola virginiana L. is based primarily upon a Clayton

specimen in the British Museum. Blake finds this plant to be *G. sphaerocarpa* Ell. The name *G. virginiana* must now be used for this species and the plant which has long passed under the name must be called *G. neglecta* Torr.

ILYSANTHES INAEQUALIS (Walt.) Pennell

Pennell, Torreya 19: 149. 1919

A neglected name of Walter is considered by Pennell to be properly taken up for the long-peduncled plant in recent years called *I. anagallidea* (or erroneously *I. dubia*).

LIMOSELLA SUBULATA Ives

Fernald, Rhodora 20: 160. 1918
Pennell, Torreya 19: 30. 1919

The plant of Atlantic North America referred to *Limosella aquatica, L. aq.* v. *tenuifolia* or *L. tenuifolia* is shown by Fernald to be a distinct species. It was recognized as such by Ives in 1817 and described as *L. subulata*. *L. aquatica* is a characteristic European plant, found also in western North America, having leaves with definite blades and a rosette habit, and occurring in fresh habitats. *L. subulata* has no leaf blade, a closely matted and creeping habit, and occurs in saline or subsaline soils. Pennell has noted additional diagnostic characters.

VERONICA PERSICA Poir.

Farwell, Rhodora 21: 101. 1919

The name *V. Tournefortii,* recently come into use for the plant long known as *V. Buxbaumii,* is shown by Farwell to belong to a different species. *V. persica* Poir. seems to be the oldest name applicable.

VIBURNUM AFFINE Bush.

Blake, Rhodora 20: 11. 1918

Examination by Blake of the type of Aiton in the British Museum and also the Solander manuscript of the Hortus Kewensis shows that the name *V. pubescens* (Ait.) Pursh must be applied to the species which was described by Britton as *V.*

venosum. The earliest clearly available name seems to be *V. affine* Bush (in actuality referring to the western form of the species). If it seems advisable to separate the eastern and western forms, our eastern plant is to be called *V. affine* var. *hypomalacum* Blake.

SYMPHORICARPUS ALBUS (L.) Blake

Blake, Rhodora 16: 117. 1914

In his examination of the Linnean Herbarium Blake has studied the type specimen of a species named *Vaccinium album* by Linnaeus and finds that it is the ornamental shrub cultivated under the name of Snowberry and almost universally known as *Symphoricarpus racemosus* Michx. This garden plant, commonly escaping to roadsides, is more accurately *S. albus* var. *laevigatus* (Fernald) Blake.

PRENANTHES AUTUMNALIS Walt.

Blake, Rhodora 17: 135. 1915

In his study of the Walter Herbarium, Blake notes that there is extant a good specimen of *Prenanthes autumnalis* Walt. This is the plant known as *P. virgata* Michx. All authorities, including Michaux himself, have referred Walter's species to *P. virgata,* Blake asserts, but have failed to adopt the prior name.

TARAXACUM LAEVIGATUM (Willd.) DC.

Sherff, Bot. Gaz. 40: 356. 1920

Recent examination of Willdenow's original specimen of *Leontodon laevigatum* shows that it is the plant known in American literature as *T. erythrospermum.* Our common Red-seeded Dandelion must accordingly take up Willdenow's earlier name.

XANTHIUM CHINENSE Mill.

Millspaugh and Sherff, Field Museum Bot. 4: 17. 1919

In a very interesting account of the history of this plant, Millspaugh and Sherff, in their revision of the genus, have shown that it originally came from Mexico (not China) and

is a species common in that region as well as in our own area. It is the plant recently referred to *X. canadense*, *X. americanum* or *X. glabratum*.

XANTHIUM ITALICUM Mor.

Millspaugh and Sherff, Field Museum Bot. 4: 40. 1919

Our common plant described by Britton as *X. commune* and so referred in all recent American treatments is identified by Millspaugh and Sherff with an Old World species. Their exhaustive studies in the genus add much weight to this view.

SOLIDAGO SUAVEOLENS Schoepf.

Standley, Rhodora 21: 69. 1919

A name for the Sweet Goldenrod, antedating Aiton's *S. odora* by a year, has been brought to attention by Standley. It occurs in an obscure book of early travel in America by Johann David Schoepf. Happily it is practically synonyomus with the long familiar name.

GALINSOGA CILIATA (Raf.) Blake

St. John and White, Rhodora 22: 97. 1920
Blake, Rhodora 24: 34. 1922

In 1916 Bicknell raised to specific rank the plant that had previously passed as *G. parviflora* var. *hispida*. In 1920 St. John and White thoroughly demonstrated its specific validity with the amplification of characters. Recently Blake has discovered that the plant was early recognized by Rafinesque.

Notes on Some Local Plants and Their Soil Acidity

EDGAR T. WHERRY

OPHIOGLOSSUM VULGATUM MINUS (O. ARENARIUM). In Stone's "Plants of Southern New Jersey" (p. 122) three localities, all in the Coastal area, were given for this plant; it was regarded, however, as a mere form of drier exposed habitat, unworthy of nomenclatorial recognition. July 25, 1920, a colony of it was discovered near Whitesbog, three miles east of Browns Mills, in the Pine-barren area. The habitat was not dry nor exposed, but was a damp peaty meadow, mediacid in reaction, in which grew *Sphagnum, Drosera, Oxycoccus,* etc. The plants showed two, three, or even four stalks from each crown, their sterile blades being narrower and more acute than those of the typical species.

Tests of *O. vulgatum* at many places have shown it to prefer minimacid or at most subacid soils, while those at the *O. v. minus* localities examined are mediacid. On the other hand, the soil on plants of *O. engelmanni,* kindly collected for me near St. Louis by Mr. Kellogg, of the Missouri Botanical Garden, proved to have a minimalkaline reaction. The suggestion is accordingly made that the differences between these several species, subspecies, or varieties (whichever they may be) have developed concurrently with adaptation to growth in soils of divergent reactions. This may be expressed graphically as follows:

Soil reaction:

Mediacid | Subacid | Minimacid | Neutral | Minimalkaline

Original form — *Ophioglossum vulgatum* (↙ ↘)

Descendents:

O. v. minum ("arenarium") — *O. engelmanni*

LILIUM SUPERBUM. In an essay on correlation between vegetation and soil acidity in southern New Jersey (*Proc. Acad. Nat. Sci. Phila.*, 1920, p. 117) the writer reported *Lilium canadense* as growing in circumneutral soil (as normal for this species) at Lindenwold. Mr. Bayard Long has questioned this identification, stating that he has been able to find only *L. superbum* there. As the writer's notes indicate that the identity of the plants was not certain, it is probable that the occurrence represented the commoner species, somewhat abnormal in aspect because of unfavorable soil reaction.

SPIRANTHES GRACILIS. This orchid was not recorded from the Pine-barren area by Stone, but July 26, 1920, was found near Whitesbog in that province. It grew along a road in grassy open woods in soil of subacid to mediacid reaction, and may have been a recent arrival from the Marl area (''Middle District'') a few miles to the west, although it appeared to be well established.

HELENIUM TENUIFOLIUM. Among the weeds of calcareous (minimalkaline) waste places along railroads in the southern states, this bitterweed is one of the most characteristic. It was a surprise to find, in the summer of 1921, a plant of it in a like situation at Henderson Station, Montgomery County, Pennsylvania. A seed brought in on a railroad car was no doubt responsible.

General Notes

Death of Mr. MacElwee. On January 23, 1923, the Club suffered a severe loss in the death of its president, Alexander MacElwee. Mr. MacElwee was tireless in the Club's behalf and in interesting others in our work. He was well acquainted with the Local Flora and had a wide knowledge of cultivated plants. An account of his life and botanical work is to appear in our next issue.

Assistant in the Local Herbarium. Since February, 1922, Mr. George W. Bassett, long a member of the Club, has been assisting in the care of its growing herbarium. Mr. Bassett brings to this work a general knowledge of the Local Flora, particularly of southern New Jersey, and a special acquaintance with cultivated plants.

Geographic Arrangement of Specimens. To facilitate the finding of data about the plants of any desired portion of our area the specimens of each species in the Local Herbarium are being arranged in a definite sequence of states and counties. The sequence adopted is as follows: NEW JERSEY: Warren; Hunterdon; Mercer; Middlesex; Monmouth; Ocean; Burlington; Camden; Gloucester; Salem; Atlantic; Cumberland; Cape May. PENNSYLVANIA: Northampton; Lehigh; Berks; Bucks; Montgomery; Philadelphia; Delaware; Chester; Lancaster; York. DELAWARE: Newcastle. MARYLAND: Cecil. This task, begun four years ago by Mr. Long, is now nearing completion.

Symposium to Alloway, New Jersey. During the past ten years the Club has participated in several symposiums jointly with the Torrey Botanical Club, of New York, the most recent

event being a three days' outing over Labor Day, the week-end of August 30 to September 1, 1924. Excursions from Alloway were made to an interesting marl bed, to several attractive lakes, and into the pine-covered hills toward the Cohansey Creek. The portion of Salem County visited had been poorly represented in our Herbarium, and the plants obtained were proportionately valuable. Mr. Bassett acted as guide.

Perkiomen Flora. "A Preliminary List of the Flora of the Perkiomen Region" has recently appeared, compiled by three members of our Club and based upon their field work. Dr. William A. Kline, Rev. T. Royce Brendle and Joseph R. Mumbauer have brought together in a convenient booklet a list of the flowering plants and ferns of the valley with information of their habitats and local abundance. Such detailed studies are needed for many parts of the Club territory.

Some Pennsylvania State Floras. Since our last issue several revised editions of J. S. Illick's "Pennsylvania Trees," (Bulletin No. 11 of the Department of Forestry of Pennsylvania) have appeared, the last being dated May 1, 1923. In May, 1924, E. M. Gress's "The Grasses of Pennsylvania" was issued as General Bulletin 384 of the Pennsylvania Department of Agriculture. Both works contain keys and illustrations, in addition to ample descriptions. The detailed enumeration of counties for each species, attempted by the bulletin on grasses, reveals the fact that the wealth of material in our Herbarium has not been adequately utilized.

Taylor's Flora of the Vicinity of New York. As indicated in Mr. Long's paper in this issue the last comprehensive flora of the larger portion of our Local Flora area was "Taylor's Flora" published in 1915 as Memoir V of the New York Botanical Garden. It covered the area of interest of the Torrey Botanical Club, including all of New Jersey and the following counties in Pennsylvania: Wayne; Lackawanna; Luzerne; Pike; Monroe; Carbon; Schuylkill; Northampton; Lehigh; Berks; Bucks; Montgomery; Philadelphia; Delaware, and Chester.

Program of Meetings of the Philadelphia Botanical Club from January, 1915, to December, 1923

1915

Date	Subject	Speaker	Attendance
Jan. 28	Botanical Recreations in California—written by Chas. Francis Saunders, Pasadena	Lee Sowden	11
Feb. 25	Local Chenopods	Bayard Long	11
Mar. 25	A Recent Collecting Trip in South Carolina	Edwin B. Bartram	9
Apr. 22	Plants About Manning, S. C.	Dr. Witmer Stone	11
May 27	Notes by Members	———	9
Sept. 23	Notes on Summer Trips	Members	9
Oct. 28	California Experiences	Dr. Witmer Stone	13
Nov. 18	Botanical Notes	Members	8
Dec. 23	A Summer Trip to the Pacific Coast	Dr. Witmer Stone	15

1916

Jan. 27	Exhibit of Mounted Specimens collected by W. Leipelsberger in Berks County, Pa.	Bayard Long	10
Feb. 24	Trees of Washington Square	W. M. Lansdale	12
Mar. 23	Botanical Notes, particularly applied to Gingko and Trailing Arbutus. Recent finds of O. H. Brown	Alexander MacElwee	9
Apr. 27	Orchids collected by Porter	Bayard Long	11
Sept. 28	Summer Trips	Members	9
Oct. 26	A Trip to the Home of Humphrey Marshall	Joseph Crawford	12
Nov. 23	Summer Experiences in Maine with Prof. Fernald	Bayard Long	9
Dec. 16	Medicinal Plants and their Cultivation Methods	Dr. Henry Kraemer	23

1917

Date	Subject	Speaker	Attendance
Jan. 25	The Hackensack Meadows	Dr. John W. Harshberger	19
Feb. 15	Kew Gardens of London	Alexander MacElwee	9
Mar. 22	The Myricaceae	Dr. Heber W. Youngken	13
Apr. 26	Notes on Flora of Susquehanna County about London Hill	Alexander MacElwee	13
May 24	Spring Trips	Members	8
June 30	Field Day, Horticultural Hall, Fairmount Park	Alexander MacElwee	10
Sept. 30	Summer Trips	Members	14
Oct. 25	Botanical Notes	Members	8
Nov.	No meeting	———	—
Dec. 27	Reorganization	———	5

1918

Jan. 24	Botanical Notes	Members	8
Feb. 28	The Ranunculaceae	Alexander MacElwee	15
Mar. 28	Pine Barren Plants	Dr. Witmer Stone	15
Apr. 25	Common Trees	Dr. A. A. Jones	12
May 23	White Pine Blister	Glenn Hahn	12
Sept. 26	The Mints	Stewardson Brown	21
Oct. 24	Unusual Plants found by a Tyro	Robert F. Welsh	18
Nov. 21	Botanical Trip in the West Virginia Mountains	Harry W. Trudell	26
Dec. 26	Orchids in the Club's Range	Dr. Witmer Stone	31

1919

Jan. 23	Some Aspects of the Flora in the vicinity of Cape May	Dr. Witmer Stone	19
Feb. 27	Flora of Bushkill, Pa.	Edwin B. Bartram	28
Mar. 27	Winter Studies of Trees and Shrubs	H. L. Fisher	20
Apr. 24	Flora of the Perkiomen Valley	Rev. Harvey G. Allebach	30
May 22	Botanical Notes on the Flora of W. Phila., past and present	Alexander MacElwee, Dr. John W. Harshberger and Samuel N. Baxter	22
Sept. 25	Asclepiadaceae	Stewardson Brown	14
Oct. 23	Incidents in Orchid Hunting	George Redles	19

Date	Subject	Speaker	Attendance
Nov. 20	Botanizing in the Mountains of New Hampshire and Vermont	Harry W. Trudell	22
Dec. 18	"Every Member's Experience"	———	19

1920

Jan. 22	Collecting in the Chiricahua Mountains of Arizona	Dr. Witmer Stone	26
Feb. 26	Applied Economic Botany	Henry Hicks	29
Mar. 25	Studies in Oaks of the S. W. U. S.	Stewardson Brown	23
Apr. 22	The Scrophulariaceae	Dr. Francis W. Pennell	31
May 27	The Arnold Arboretum	Alexander MacElwee	20
Sept. 23	Collecting in the Dismal Swamp of Virginia	Harry W. Trudell	27
Oct. 28	Rambles Among the Flora of North Mountain	Dr. H. B. Meredith	25
Nov. 18	1920 Botanical Exploration of Nova Scotia	Bayard Long	26
Dec. 30	Exhibition of Specimens	———	28

1921

Jan. 27	Jersey Jaunts for 1921	George W. Bassett	23
Feb. 24	A Midwinter Botanical Trip to Duncannon, Pa.	Dr. John W. Harshberger	14
Mar. 24	Impressions of a Botanist in Colombia	Dr. Francis W. Pennell	23
Apr. 28	Midwinter Botanizing in Southern Arizona	Edwin B. Bartram	21
May 26	An Early Spring Trip to the Poconos	Alexander MacElwee	20
Sept. 22	A Vacation in the Southern Alleghanies	Harry W. Trudell	27
Oct. 27	Haunts of our Native Orchids	George Redles	27
Nov. 17	Studies of the Flora of Northeastern Pennsylvania	Dr. H. B. Meredith	18
Dec. 22	Our Native Plants and their Soil Preferences	Dr. Edgar T. Wherry	47

1922

Date	Subject	Speaker	Attendance
Jan. 26	Second Year of Botanical Exploration in Nova Scotia	Bayard Long	28
Feb. 23	A Trip Through the Cypress Swamps of Florida	John M. Fogg, Jr.	20
Mar. 23	Pine Mountain Region of S. E. Kentucky	Dr. Witmer Stone	29
Apr. 13	Studies in Lichens	Dr. John W. Eckfeldt	24
May 11	Distribution of the Genus Rosa	Alexander MacElwee	21
Sept. 28	A New Plant Industry	Alexander MacElwee	18
Oct. 26	Georgia and the Carolinas in June	Harry W. Trudell	18
Nov. 23	Pollen	Dr. Henry Leffmann	28
Dec. 28	Exhibition of Specimens	———	29

1923

Jan. —	No meeting due to the death of Alex. MacElwee.	———	—
Feb. 15	Seaside Mountains for the Amphibious Botanist	Dr. Wm. Randolph Taylor	13
Mar. 22	Botanizing in Scandinavia	Dr. John W. Harshberger	24
Apr. 26	Collecting about Lake Minnewaska	Lee Sowden	22
May 24	Observations on Spring Flowers about Charleston, S. C.	Dr. Witmer Stone	23
Sept. 27	Summer Botanical Experiences by the Members.	———	16
Oct. 25	Rescuing Elliottia	Harry W. Trudell	—
	Wanderings about Woods Hole, Mass.	John M. Fogg, Jr.	23
Nov. 22	Fossil Botany	Dr. Henry Leffmann	21
Dec. 27	Flowers and Plants I Saw in the Yukon Territory	Adolf Müller	16

OFFICERS AND MEMBERS

OF THE

Philadelphia Botanical Club

1924

HARRY W. TRUDELL, *President*
J. C. BOYLE, *Vice-President*
JOHN M. FOGG, JR., *Secretary*
ARTHUR N. LEEDS, *Treasurer*
BAYARD LONG, *Curator*

ACTIVE MEMBERS

	Elected
Edwin B. Bartram, Bushkill, Pa.	1906
Samuel Newman Baxter, Fernhill Park, Germantown, Pa.	——
Russell Bebbler, 135 East Phil Ellena St., Germantown, Pa	——
Walter M. Benner, Telford, Pa.	1912
George M. Beringer, 5th and Federal Sts., Camden, N. J.	Founder
John A. Borneman, Norwood, Pa.	1912
J. C. Boyle, 2919 Oxford St., Philadelphia, Pa.	——
Rev. T. R. Brendle, Green Lane, Montgomery Co., Pa.	——
Herman G. Brinkman, 1818 Tioga St., Philadelphia, Pa.	1919
Dr. Herman A. Burgin, 63 West Chelton Ave., Germantown, Pa.	——
James J. Burk, Addingham, Pa.	1919
Van Buren Connell, 2018 Chestnut St., Philadelphia, Pa.	1924
Dr. Albert Cornog, 5836 Lansdowne Ave., Philadelphia, Pa.	1923
Joseph Crawford, Phipps Inst., 7th & Lombard Sts., Phila., Pa.,	Founder
L. N. Dorsey, 5014 Schuyler St., Germantown, Pa.	1919
F. E. Draper, 2008 Broadway, Camden, N. J.	1921
Robert R. Dreisbach, 5410 N. Front St., Olney, Pa.	1922
Dr. John W. Eckfeldt, 6312 Vine St., Philadelphia, Pa.	1892
John M. Fogg, Jr., 6607 N. 10th St., Oak Lane, Pa.	1921
John S. Frankenfield, 236 N. 53rd St., Philadelphia, Pa.	1920
Dr. C. D. Fretz, Sellersville, Pa.	1892
J. H. Grove, New Egypt, N. J.	1905

	Elected
W. Hague, North Wales, Pa.	1924
Dr. John W. Harshberger, 4839 Walton Ave., Philadelphia, Pa.	1911
Louis F. Heck, 734 S. 59th St., Philadelphia, Pa.	1919
F. F. Huber, Pennsburg, Pa.	1911
Edwin C. Jellett, 118 Hermann St., Germantown, Pa.	1919
George Johnson, 809 Madison St., Chester, Pa.	1922
Dr. Arthur A. Jones, 1810 Jefferson St., Philadelphia, Pa.	1897
Dr. Ida A. Keller, 4424 Osage Ave., Philadelphia, Pa.	1892
Rev. W. V. Kistler, Pennsburg, Pa.	1911
Prof. W. A. Kline, Ursinus College, Collegeville, Pa.	1911
Dr. Henry A. Laessle, 59th and Market Sts., Philadelphia, Pa.	1894
Dr. H. Pearce Lakin, 14 E. Main St., Lansdale, Pa.	1906
Mrs. H. Pearce Lakin, 14 E. Main St., Lansdale, Pa.	1906
Henry A. Lang, 138 Sumac St., Philadelphia, Pa.	1901
Dr. Charles H. La Wall, 39 S. 10th St., Philadelphia, Pa.	1896
Arthur N. Leeds, 5321 Baynton St., Germantown, Pa.	Founder
Morris E. Leeds, 5321 Baynton St., Germantown, Pa.	Founder
Dr. Henry Leffmann, 1839 N. 17th St., Philadelphia, Pa.	1922
Dr. T. Montgomery Lightfoot, 5935 Greene St., Germantown, Pa.	1892
Charles D. Lippincott, Swedesboro, N. J.	Founder
Bayard Long, 250 Ashbourne Road, Elkins Park, Pa.	1906
Mayne Reid Longstreth, 1420 Chestnut St., Philadelphia, Pa.	1892
Philip W. Marett, 6604 Limekiln Pike, Philadelphia, Pa.	1920
Dr. A. S. Martin, Norristown, Pa.	1899
Dr. H. B. Meredith, 208 N. 34th St., Philadelphia, Pa.	1920
John G. Montgomery, 5539 Thompson St., Philadelphia, Pa.	1919
Benjamin F. Mowbray, 1507 N. 61st St., Philadelphia, Pa.	——
Adolf Müller, Box 66, Norristown, Pa.	1920
John R. Muir, Germantown, Pa.	——
John R. Overholzer, 6 W. Main St., Norristown, Pa.	1892
Dr. Francis W. Pennell, Moylan, Pa.	1910
John T. Pennypacker, 1009 Jefferson St., Wilmington, Del.	1892
Harold W. Pretz, 368 Union St., Allentown, Pa.	1909
J. W. Prince, 5439 Berks St., Philadelphia, Pa.	1924
Evan Randolph, 116 S. Third St., Philadelphia, Pa.	——
George Redles, 207 E. Wister St., Germantown, Pa.	——
Dr. W. H. Reed, Jeffersonville, Pa.	1892
John F. Sattler, 1013 W. Lehigh Ave., Philadelphia, Pa.	1918
Edwin I. Simpson, 434 Real Estate Trust Bldg., Philadelphia, Pa.	1907
Lee Sowden, 3122 Midvale Ave., Philadelphia, Pa.	1901
Dr. Witmer Stone, Academy of Natural Sciences, Phila., Pa.	Founder
Willard A. Stowell, 41 Delawareview Ave., Trenton, N. J.	1920
J. Fletcher Street, 1120 Locust St., Philadelphia, Pa.	1918

Elected

DR. WILLIAM RANDOLPH TAYLOR, University of Pa., Phila., Pa. 1921
W. R. THOMAS, Custom House, Philadelphia, Pa. 1924
H. E. THOMPSON, 5016 Schuyler St., Germantown, Pa. 1920
HARRY W. TRUDELL, 2030 E. Madison St., Philadelphia, Pa. ..... ——
WALTER VAN DER HENGEL, 63rd and Overbrook Ave., Overbrook, Pa. ——
CLARENCE E. VARNUM, Atco, N. J. 1923
MILES A. VOLLMER, 243 W. Mentor St., Olney, Pa. 1923
ROBERT F. WELSH, 132 S. 4th St., Philadelphia, Pa. 1909
C. S. WERTSNER, 211 N. 13th St., Philadelphia, Pa. 1920
J. GILBERT WILLIAMS, 1517 N. 58th St., Philadelphia, Pa. ..... ——
EDWARD W. WINSOR, N. J. Agric. Exp. Sta., New Brunswick, N. J. 1920
DR. HEBER W. YOUNGKEN, Boston, Mass. ..... ——

HONORARY MEMBERS

GEORGE W. BASSETT, 3148 W. Ironsides Road, Fairview, Camden, N.J. 1904
JOHN J. TYLER, 106 E. Johnson St., Germantown, Pa. ..... ——
SAMUEL S. VAN PELT, 59 Bethlehem Pike, Chestnut Hill, Pa. 1902

CORRESPONDING MEMBERS

CHARLES C. BACHMAN, Slatington, Pa. 1908
EUGENE P. BICKNELL, New York City 1896
MRS. ELIZABETH G. BRITTON, New York Botanical Garden 1895
DR. NATHANIEL LORD BRITTON, New York Botanical Garden 1892
OTWAY H. BROWN, Cape May, N. J. 1908
REV. J. S. BUNTING, Macon, Ga. 1907
STEWART H. BURNHAM, Hudson Falls, N. Y. 1911
A. ARTHUR HELLER, Chico, Calif. 1893
JAMES J. MOORE, Philadelphia, Pa. 1919
W. A. POYSER, Hammond, Ind. 1906
CHARLES F. SAUNDERS, Pasadena, Calif. 1893
DR. JOHN K. SMALL, New York Botanical Garden 1893
HUGH E. STONE, Coatesville, Pa. 1893
DR. CAMPBELL E. WATERS, Washington, D. C. 1904

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No. 9 1925-1926

BARTONIA

PROCEEDINGS OF THE

PHILADELPHIA BOTANICAL CLUB

EDITED BY

FRANCIS W. PENNELL

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ALEXANDER MacELWEE

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 9 PHILADELPHIA, PA. 1925–1926

Alexander MacElwee

H. W. TRUDELL AND F. W. PENNELL

In the passing of Alexander MacElwee on January 23rd, 1923, our Club has lost another of the "Big Brothers," who have endowed the organization with its splendid spirit of fellowship. His was a leading influence of friendliness among the members, and he was always ready to welcome the stranger, making him realize that he had come among friends bound together by a common love for all plants, from the lowliest forms to the sublime giants of the woodlands. Seldom were the meetings when he did not bring someone whom he had met and prevailed upon to attend a meeting, and it was due to his friendly activity that the Club has many of its present members.

"Mac" became a member of the Philadelphia Botanical Club in February, 1892, only two months after the Club's foundation. From that meeting commenced his work as a curator of the Club's herbarium, for then he offered to mount some specimens which had been presented by I. C. Martindale. Keenly did he value his association with Dr. J. Bernard Brinton and other figures of the Club's early days. These cherished experiences were the foundations of a long interest; for nearly fourteen years he served as the Club's Curator and more recently, from 1918 to 1923, as its President.

Alexander MacElwee was born in Glasgow, Scotland, where he attended the public schools and graduated with honors at eleven years of age. Then he went to work. He served first as errand boy in a drug store, then as office boy for a commission agent, and later as assistant in a wholesale drug house. When he was thirteen years old, his parents emigrated to America, leaving him and a younger brother to follow a year later; they arrived in the United States October 16th, 1883. Shortly after reaching Philadelphia, he secured work on the estate of Anthony J. Drexel.

At fifteen there came into his possession an old copy of Mrs. Lincoln's "Familiar Lectures on Botany" and two years later he started the collecting of an herbarium. About this time he obtained Wood's "Class Book of Botany," a work that broadened considerably his outlook on the science. He also devoted much of his spare time to the study of Latin, German, ancient and modern history, geology and entomology, supplemented by a wide course of reading.

The horticultural interest, commenced on the Drexel Estate, grew into the dominating business interest of Alexander MacElwee's life. In this line he soon proved his ability and laid the foundations of future success. In the main his after years show a steady progress in this field, but his course was chequered by trials in other lines. Several times his interest in botany induced him to accept the more congenial but less remunerative task of curator of museum collections. His greatest success was in the special field of landscape gardening.

In 1887 Mr. MacElwee became associated with the Hugh Graham Nursery, which offered him a chance of more specialized horticulture, notably in the growing of ferns and palms. Soon followed a year's experience in the building trade. Returning to horticulture, he passed several years in gardening, first at "Lindenhurst," the estate of John Wanamaker at Jenkintown, and then at "Ravenhill," the Germantown home of William Weightman.

It was in 1894 that Alexander MacElwee undertook his first purely botanical task, the care of the botanical collections of the Philadelphia College of Pharmacy. This institution had just acquired the large Martindale Herbarium, and "Mac"

had this to put in order and to see to the work of mounting its thousands of specimens.

At that time plans were being developed for a Botanical Garden at the University of Pennsylvania, and Mr. MacElwee's services were called upon for it. Such a combination of qualities as this task demanded, of horticultural skill with scientific goals, must have been precisely to his liking. We may be sure that MacElwee threw himself into the project with his characteristic enthusiasm and that he contributed materially to the rapid development of the Garden.

After an unsuccessful venture into greenhouse gardening on his own account, Mr. MacElwee once more left outdoor work for a botanical curatorship, that of the miscellaneous plant collections of the newly organized Philadelphia Museums. Dr. William P. Wilson, who had once been professor of botany in the University of Pennsylvania and retained his special interest in this field, was the developer of this project and has witnessed its expansion into the great Commercial Museum of to-day. Mr. MacElwee entered gladly into the economic study of plants which this position entailed, and classified and cared for the various collections of fibers, woods, dyes, tannins, medicinal plants, etc., that were rapidly accumulating. In addition to these he worked energetically toward the founding of a museum herbarium, collecting extensive series of duplicates with the plan of establishing botanical exchanges. Eventually, some time after he had left the Museums, it was decided that the amassing of a general herbarium was outside of the scope of the Commercial Museum, and the entire collection was presented to the Academy of Natural Sciences.

It was during his work at the Philadelphia Museums that Alexander MacElwee became keenly interested in the critical study of certain of our trees, especially of the genus *Hicoria*. Of the hickories he made many collections and had under observation several proposed novelties. While it is regrettable that he never concluded these studies, it is yet fortunate that his excellent specimens, accompanied by careful notes and labeled with his special names, are deposited in the herbarium of the Philadelphia Botanical Club.

But outdoor life seemed essential to Mr. MacElwee so again, and finally, he turned back to horticulture. In 1901

he took over the management of Dr. Wilson's greenhouse at Gwynedd. In 1904 he became landscape gardener on a 13,000 acre estate at Browns Mills in the Pines; of this work he made a particular success but the failure of certain other interests conducted by the estate caused his return to Philadelphia. Then, in 1905, he entered upon his ten years' association in landscape gardening with the late Oglesby Paul, who for many years was landscape gardener of the city of Philadelphia. During this time "Mac" did the landscape work on many fine estates near Philadelphia, West Chester and Hershey, Pennsylvania, and Wheeling and Fairmount, West Virginia. At the last place, where he lived from 1910 to 1916, some of his work was more public in character, and included the laying out of a golf course and a public park.

For three months of 1914, Mr. MacElwee, accompanied by his wife and daughter, visited the British Isles, passing most of the time in his native Scotland. On this trip he inspected many large estates and gardens, including the Botanical Gardens at Kew and Glasgow.

After Mr. Paul's death in October, 1915, Alexander MacElwee made application for the city post thus made vacant, and on January 1st, 1917, was appointed landscape gardener by the park commissioners of Philadelphia. Into this new and most important work of his professional life MacElwee entered with energy. There is no doubt of the enthusiasm and hard work that he lavished on the parks of Philadelphia; nor is there doubt of the value of his plans or of the results that he was obtaining. It is sad to think that he was to have only four years, and those under economic conditions so peculiarly trying, in which to formulate and try to achieve projects of such size.

Of these there was one that lay nearest his heart. As long ago as 1878 the Fairmount Park Commission had approved Charles F. Miller's plans for an arboretum, but the matter had not progressed beyond the planting of a few groups of trees. MacElwee's chief ambition was to develop this arboretum, and his imagination enlarged its original scope so that the arboretum should become one of the most extensive and scientifically important collections of trees and shrubs in

America. It was to have covered 140 acres in the western part of the Park. In this cause he made trips to the Arnold Arboretum, New York and Brooklyn Botanical Gardens, and the Seed and Plant Introduction Service at Washington. From each of these sources he was rewarded with generous contributions in seeds, cuttings and plants, the Arnold Arboretum sending in one year nearly 1,300 species and varieties. Consequently thousands of the rarer rhododendrons, flowering cherries, barberries, hydrangeas, hollies, lilacs, roses, crab-apples, oaks, loniceras, etc., etc., were started in the Park nurseries, intended for the Arboretum. Now that the master spirit has gone the project of the Arboretum has rested almost inactive, but these young trees and shrubs remain and form a nucleus from which MacElwee's dream should be developed.

In the welfare of the Academy of Natural Sciences Mr. MacElwee's interest was long-continued. In 1885, soon after his arrival in this country, he became acquainted with its botanical activities; in 1892, as already recounted, he joined the Botanical Club which still meets in its halls; and in 1903 he became a life member of the Academy. While serving for thirteen years as Curator of the Club's Herbarium, he mounted and put in order many of the specimens which are now in our Local Herbarium. This lasted until 1905, the year that marked the turn in MacElwee's prospects and also, through the arrival of Samuel S. Van Pelt, in those of the Club's Herbarium. At that time, realizing the engrossing nature of the landscape work to which he was now giving his thought, MacElwee sold to the Academy his entire herbarium, the fruit of over twenty years of devoted interest. The MacElwee Herbarium contained some 10,000 specimens, and has been one of our largest series of local plants, although also containing specimens acquired by exchange from many parts of the world.

Although during his later and busiest years he was seen less at the Academy, excepting for his ever-faithful attendance at the meetings of the Botanical Club, in one way he still showed the extent of his interest in the institution. From the Arnold Arboretum he obtained extensive series of specimens of horticultural plants, and these, with other collections to be acquired, were to form the nucleus of a special horticultural her-

barium in the Academy's custody. It is hoped that this project may be continued, and interest is asked for the "MacElwee Horticultural Herbarium."

In addition to Alexander MacElwee's activities already recounted, mention should be made of his interest in the Germantown Horticultural Society. Mr. James G. Scott, a member of that society, states that MacElwee's work, leadership and enthusiasm were of incalculable value in broadening the scope of that organization and making its influence felt. He speaks of the breadth of MacElwee's experience and his readiness to help all who appealed to him.

It seems that some articles contributed years ago to "Garden and Forest," an ecological paper in the Proceedings of the Academy of Natural Sciences, and certain short articles on botanical themes in the "Germantown Guide," comprise all Mr. MacElwee's published work. It is not so much as the student that we remember and honor him, but as the zealous collector, the planner of an Herbarium and of an Arboretum, and ever as the friendly promoter and president of our Club, always eager to awaken interest in his favorite science.

Of Alexander MacElwee's personality the Rev. J. C. Broomfield, of Fairmount, West Virginia, writes with true appreciation. In fifteen years' acquaintance he was always impressed by Mr. MacElwee's guileless, honest character and tells how his own life had been influenced by this clean sterling spirit. "Mac" he always found a generous, unselfish friend, and he speaks of the regret with which the citizens of Fairmount learned of his departure. Dr. Broomfield adds that, in his experience of nearly twenty years, he knew of no one, coming from the outside, who, by a combination of heart, mind and spirit, had made such an impression on the people of that town as had Alexander MacElwee.

A new Station for Serapias helleborine L.

HAROLD W. PRETZ

In the autumn of 1922, an orchidaceous plant, then in fruit, was discovered growing in fair abundance about bushes of exotic *Rhododendron* planted along the stone walls of an open porch of the residence of Mr. Robert Shimer at Riegelsville, Bucks County, Pennsylvania. Recognized as apparently *Serapias helleborine* L., it later proved to be that species and its presence became a matter of interest and inquiry.

Since no particular attention had been paid to the plant it was difficult to secure any definite information concerning its introduction but that this had come about through the bushes of Rhododendron rather than through any other source was strongly presumed since the introduction of exotic plants in this way is well known. It was learned that the bushes of Rhododendron had been purchased perhaps twenty years before from Hoopes Brothers and Thomas, West Chester, Pennsylvania, and in the preparation of the bed where they were planted some woodland soil, presumably from the hills near Durham Furnace, Bucks County, was used. Perhaps ten years later, some native species of ferns from the general vicinity of Nockamixon Rocks in the same county were added to this bed.

The *Serapias* was recognized as a plant that had been appearing in the bed for possibly ten or more years in spite of efforts during this time to keep the Rhododendron bed free of weeds, one of which seems to have been this plant. It was not possible to account in any way for the years between the time of planting of the Rhododendron bushes and the time the *Serapias* had been noticed excepting that in the constant effort made to keep the bed free of weeds at all times the *Serapias* may have escaped especial notice.

Through the kindness of Dr. S. C. Schmucker, of West Chester, Pennsylvania, who is personally acquainted with members of the firm of Hoopes Brothers and Thomas, it was

learned that at the approximate time these Rhododendron bushes were planted, yearling Rhododendrons were imported from Holland, planted for a few years and then sold. The ground used for this purpose was changed crop by crop and no one place has been kept in Rhododendrons. A specimen of *Serapias* was left with two of the men at the nursery who are used to plants and who promised to keep an eye open for the *Serapias* through the past summer. In response to a recent inquiry, Dr. Schmucker has written that he spoke with Mr. Smith of the Hoopes Brothers and Thomas Nurseries who told him that he had had the plant in mind all during the growing season and had especially looked for it several times but that none had been discovered and that no specimen of the plant to his knowledge had turned up in the nursery within this time.

During the past summer the possibility of *Serapias* occurring at the Hoopes Brothers and Thomas Nurseries was suggested to Mr. Harry W. Trudell and resulted in his immediate interest. In August he made a special trip to the nursery and spent the better part of a day in a search for the plant. It is very evident from an interesting account of his experience given in a letter that a careful and thorough search was made for evidences of the plant but without success. The search covered a large portion of the nursery especially where plants of Rhododendron and other species that had outgrown their usefulness as nursery stock had been allowed to grow unmolested apparently for years. In these places search was made about and under trees and shrubs as well as in more open grassy places along the roadsides. Mr. Trudell had seen the plant growing wild, and if *Serapias* had become established about the nurseries he would surely have found some trace of it.

The general range of *Serapias helleborine* L. in America has been given as "Quebec and Ontario to Massachusetts and Pennsylvania."[1] It was first discovered by Mrs. M. P. Church in the vicinity of Syracuse, New York, on August 6, 1879,[2]

[1] Britton & Brown, Illustrated Flora, ed. II. 563. 1913. Gray's New Manual of Botany, ed. VII. 313. 1908.

[2] Bull. Torrey Bot. Club 6: 329. 1879; 7:97. 1880.

and another station at Buffalo, N. Y., was reported in 1882.[3] In 1893 a third station at Toronto, Ontario,[4] and a fourth at Mt. Royal, Montreal, Quebec,[5] were discovered. As far as noted these latter two remain the only Canadian stations for the species. In 1897 it was observed growing "under a thick spruce hedge near the village street" at Stockbridge, Massachusetts,[6] where it is recorded as having been "introduced . . . with some garden plants from New York State.[7] In response to an inquiry concerning the record for Pennsylvania in Gray's New Manual of Botany, Prof. M. L. Fernald wrote that Prof. Oakes Ames who revised the Orchidaceae in this work has informed him that "in his herbarium there is a good specimen from Sayre, Pennsylvania, collected in July, 1906, by William C. Barbour" and that "this was doubtless the source of the record in the Manual." It has also been recorded from "near Plainfield, Union County, New Jersey,[8] and "in the Soldiers' Home woods," Washington, D. C.[9]

Since its discovery near Syracuse, *Serapias* has been recorded from many stations in New York State. The range has recently been given as "In woods and thickets. Locally abundant. Herkimer county, westward to Oswego, Monroe and Erie counties. Apparently naturalized from Europe. . . . Now known from numerous localities, in some of them quite common, which adds to the suspicion that the species has been naturalized from Europe else it would have been found prior to 1879, in a region which has been carefully explored by many botanists."[10] Much interesting comment upon this "suspicion" that the species has been naturalized from Europe may be found in many of the notes and citations concerning this orchid in botanical literature. That the Riegelsville occurrence is an introduction seems quite obvious but a definite source of this introduction remains yet to be established.

[3] *Loc. cit.* 9: 127, 128. 1882; 14: 209. 1887; 17: 23. 1890.

[4] *Loc. cit.* 20: 35, 36. 1893.

[5] *Loc. cit.* 20: 440. 1893; 23: 354. 1896.

[6] Rhodora 1: 52. 1899.

[7] Rhodora 4: 22. 1902; 19: 30, 31, 51. 1917.

[8] Bull. Torrey Bot. Club 37: 433. 1910; Mem. N. Y. Bot. Gard. 5: 254. 1915.

[9] Contrib. U. S. Nat. Herb. 21: 130. 1919.

[10] N. Y. State Mus. Bull. 254: 244. 1924.

Notes on the Distribution of Serapias helleborine L. in Western New York*

FRANK W. JOHNSON

This orchid grows abundantly within the city limits of Buffalo, especially along streets, and in lawns and shrubberies around the cemetery adjoining Delaware Park, where the plant was first discovered in 1882. It grows on hard clays in limestone soils and shale soils, and especially on the thin soils overlying small scarps and the borders of quarries. It is abundant in many lawns, despite frequent mowing of the grass.

In Erie County, outside of the city, it has been observed in practically every township, especially around the larger towns, notably East Aurora, Hamburg, Collins, Gowanda, Clarence and Akron. It grows in thickets, on open banks, and in secluded deep woods on the Cattaraugus Indian Reservation.

Serapias has been collected at various stations in Niagara County (Goat Island, Niagara Falls, Youngstown, Wilson, Lockport); in Genesee County (Indian Falls, Bergen Swamp, both in marl and in muck); in Livingston County (Portage, Letchworth Park); in Wyoming and in Cattaraugus Counties. The Rochester botanists report its occurrence in Monroe County. It is also frequent at Point Abeno, Fort Erie, Niagara Falls, Niagara Glen and other places in Ontario opposite Erie and Niagara Counties, New York. With the exception of *Spiranthes cernua,* it is doubtless the most widely distributed and abundant orchid now found in that portion of New York lying west and south of Rochester. It ranges farther east, especially in the vicinity of Syracuse, but I have not explored that part of the state.

* During August of this year, while in attendance at the Fourth International Botanical Congress at Ithaca, Tompkins Co., New York, I made acquaintance with *Serapias* on the wooded slope of Enfield Gorge. The place was so remote and wild as to make the occurrence of any introduced plant seem remarkable. Moreover, the aspect of the plant with the stems of a leafy *Cypripedium* but with flowers resembling *Corallorhiza,* would lead any unsophisticated botanist to suppose that he had found some choice native. In conversation later, Mr. Johnson, of Buffalo, N. Y., told me how widespread this orchid has become in his section, and at my request has prepared the following notes. *The Editor*

"Rescuing Elliottia"

HARRY W. TRUDELL

One of the rarest members of the Heath Family (Ericaceae) is the beautiful shrub known as *Elliottia racemosa* (Muhl.). As related by Dr. John K. Small,* it was discovered by Stephen Elliott of Charleston, S. C., in the course of preparation of his "Sketch of the Botany of South Carolina and Georgia," early in the last century, the locality being in the vicinity of Waynesboro, Georgia. He sent specimens to Dr. Muhlenberg at Lancaster, Pennsylvania, who described and appropriately named it *Elliottia.* It was later found by other botanists at several places in the same general region, but with the cutting of the forests and cultivation of the soil most of its colonies became exterminated.

In the course of his studies of the Ericaceae, Dr. Frederick V. Coville of the U. S. Department of Agriculture discovered that certain members of this family are sterile to pollen from the same plant, and, even though they spread by root-stocks into large colonies, they never produce fertile seed unless pollen from one colony is in some way transferred to the stigmas of the flowers on an entirely distinct one. He suspected that *Elliottia* might behave in this manner, in which case destruction of the individual colonies would ultimately lead to the extinction of the species. If however, the plant proved, like so many of its relatives, to prefer acid soils, then by transplanting shoots from each of two or more colonies, and growing them in a peat-sand soil, it should be possible when they bloomed to place the pollen from one on the stigmas of the other, and in this way obtain viable seed and so preserve the species. He accordingly asked Dr. Edgar T. Wherry, who was engaged in making soil tests on native plants, to endeavor to locate two or more colonies of *Elliottia* and to bring them into cultivation. It was the writer's privilege and pleasure to accompany Dr. Wherry on this expedition, in June 1923.

* Journal N. Y. Botanical Garden, 2: 113, 114. Aug., 1901.

Only four occurrences of *Elliottia* have been definitely reported during the past fifty years. One was found by P. J. Berckmans, in company with Dr. Asa Gray, in Columbia County, Georgia, in 1873.* One plant from this station was reported to be still growing in the Berckmans nursery near Augusta and another in the Kew Gardens in England, but the colony itself had been destroyed by agricultural development. On the afternoon of June 27, 1901, Dr. Roland M. Harper, with Professor J. W. Hendricks, found a small colony near Statesboro, Bulloch County, Georgia; and on July 4, 1903, another stand was discovered by him near Helena, Telfair County.

I joined Dr. Wherry at Augusta, Georgia, on the morning of June 25th, and we started on our way to the Berckmans nursery, a short distance from the city. A long Magnolia-bordered driveway led from the road to the house, where we were graciously received by Mrs. Berckmans, widow of the founder, who immediately set about arranging for us to see the specimen of *Elliottia*. In her company we passed through the beautiful gardens about the house in which we admired handsome specimens of Arbor vitae, copal indica, Spanish spruce, Camellia, Azalea, Cherokee rose, bay, camphor trees and a robust cork oak.

We descended a slope through a grove of immense pine trees and all about were large plants of *Gardenia florida* and *Camellia japonica*, the former covered with big, chalk-white, intensely fragrant blossoms. In the valley lay a shrub-embowered pond on which floated water lilies and other aquatics in considerable variety.

We found the plant of *Elliottia*, a puny shrub about fifty-four inches high, growing in a situation evidently unsuited to its well-being, as there were no signs of buds or flowers. We were now ready for the attempt to relocate Dr. Harper's colonies so as to obtain from them plants for cultivation.

From Augusta the route lay to Statesboro where we hired an automobile to carry us some thirteen miles over into Candler County. All morning was spent in the sandy barrens grown up in scrub oak and pine. In addition to an interesting series

* Cyclopedia of American Horticulture (Bailey), page 528. 1900.

of plants and flowers were splendid patches of *Sarracenia psittacina, rubra, minor* and *flava,* with several hybrids, and quantities of showy *Sabbatia dodecandra.* The afternoon was rainy and in the steady downpour we searched through woods, fields, depressions and on hill slopes but without success or encouragement. About four o'clock, we met a group consisting of a colored man and his son, and a young white man, who we later learned was a nephew of Professor Hendricks, the discoverer, with Dr. Harper, of the colony in that vicinity. Their curiosity being aroused, they discontinued efforts to round up hogs and applied their energies to the search for *Elliottia.* After covering a wide area and when about to give up the quest, I found a plant some three feet high and nearby a larger one with eight clusters of beautiful white flowers, while at the same moment Dr. Wherry saw another specimen with two clusters. The flowers are remarkable in having separate petals, marking the genus as a very primitive heath. The rain had ceased and the sun, peeping through the cluods, permitted us to get some good photographs. Dr. Wherry proceeded to make soil tests and dig one of the plants, of which there were about two dozen, although only two showed any signs of flowering and there was absolutely no fruit from the preceding seasons. The rootstocks of all the plants appeared to be connected, and this, together with the absence of fruit, confirmed Dr. Coville's view as to the reason for the rarity of the plant. No doubt before the country was settled, clumps grew near enough together for insects to carry pollen from one colony to another, so that good seeds and seedling plants were occasionally produced, and the species kept going; but lumbering, farming and fires have destroyed so many colonies that the isolated survivors have been unable to produce any recent progeny. This particular colony had evidently suffered severely from fires sweeping through the sandhills, and it was also badly infected by a leaf-spot, which the Department of Agriculture finds to be a hitherto unrecognized species.

The soil was sandy, with a scrub growth of trees, and a sparse ground cover, the effects of ground fires being apparent. The tests showed the soil to be strongly acid, and the vegetation was entirely in keeping with these conditions. About six

o'clock we met the expected automobile and the ride back to the hotel found us light-hearted and happy over the day's results.

Douglas, Coffee County, approximately 110 miles from Statesboro was next visited, and there we spent parts of two days vainly searching for *Elliottia* among magnolia and tupelo swamps, along sluggish creeks and through great stretches of sandy woods, said to be infested with rattlesnakes but which, aside from a large one seen by Dr. Wherry, were not in evidence. Many interesting plants were noted however and the experiences here were pleasant. We reluctantly left Douglas on the morning of the second day about 11.30 and reached Helena five hours later. We spent the remainder of the rainy afternoon collecting specimens of *Pinguicula, Clinopodium coccineum* and many other species. After supper, we walked two miles to MacRae, seat of Telfair County, passing on the way many attractive places on which were noted pecan groves, orange trees, bananas, aloes, pomegranates, palmettos, camphor trees and some fine specimens of willow, water and live oaks, Chinaberry trees and, in a few of the gardens, *Pinckneya pubens* with its showy, rose-colored terminal leaves surrounding the otherwise unattractive flowers.

The next day (June 29th) we were driven some five miles south of the village of MacRae to Turnpike Creek. Here, after we had searched for about an hour, Dr. Wherry discovered a group of *Elliottia* ranging from 3 to 6 feet in height and consisting of about twenty specimens. On a single plant there had been flowers but practically all had fallen and, as before, no fruit was developing. It was in this vicinity that Dr. Harper found, July 4, 1903, the stand of *Elliottia* about which he wrote: "I found about twenty specimens of *Elliottia racemosa,* the largest specimen about ten feet tall. They were almost past flowering but showed no indications of producing fruit this year, although the flowers were being visited by several kinds of insects but on one plant I found—a single, empty, globose four-valved, irregular capsule of about 5 mm. in diameter, probably last year's crop. Care will be taken to preserve this only fruit of *Elliottia* on record." This fruit is now one of the prized specimens at the New York Botanical Garden. Our find was on the edge of a roughly cleared field but little

above high water mark of Turnpike Creek and less likely to be injured by fire than the other colony. Among the surrounding vegetation was noted *Pinus elliottii,* saw palmetto, alder, willow oak, Wistaria, wild cherries, *Cyrilla, Cliftonia, Ilex glabra,* Rhexias, *Clethra,* Azaleas, *Kalmiella hirsuta,* Xolismas, Gaylussacias, *Batodendron,* persimmon and some *Gordonia lasianthus* trees, about sixty feet high and covered with flowers. The soil, as at Statesboro, was ascertained to be strongly acid.

It is hoped that the two plants will continue to grow and soon produce blossoms, so that a cross may be made and the introduction of this rare and interesting shrub into cultivation accomplished by the Department of Agriculture.

On the Irregular Occurrence of Certain Native Plants

GEORGE JOHNSON

In the 1924 issue of BARTONIA, Dr. Harshberger called attention to the "Rhythmic or Seasonal Appearance of certain Orchids." In 1912 the present writer found *Habenaria ciliaris* and *H. blephariglottis* in abundance at West Asbury Park, New Jersey. In 1919, on revisiting this locality, the latter was found in abundance while the former had completely disappeared. In 1920, 1921 and 1923 the latter was still missing. One small group of *Habenaria cristata* was the only species of yellow orchid found there. *Corallorhiza odontorhiza* is another orchid that has this disappearing habit. Especially is this the case when it is disturbed. On numerous occasions when it has been picked, it has proved missing the following years.

Gentiana crinita is very uncertain. Although our botanies give it as a biennial, it seems to be spontaneous. In 1892 it was found to be very abundant in an open wet meadow. But the five following years there was not a sign of it. Then in 1898 it bloomed as plentifully as it had in 1892. Those who have formed the good habit of scattering seed need not be discouraged if they find no signs of the plant for several years.

Mitchella repens is a plant that seems to perfect seed only locally. Large patches of it may be found that bloom year after year, and yet on which one will find never a berry. 1925 seemed to be an off year for it, as the berries were very scarce in places where they had been plentiful for the previous six years.

Cypripedium acaule is also a plant that is only locally fertile. Numbers of plants may be found with very few if any seed-pods, although in other places nearly every plant will carry its fruit. As many as three old pods have been found along with the new flowers. At Mansfield's Grove near the East Haven River in Connecticut this orchid was found abundantly, and there one could always find many flowers that had been fertilized. There were also many plants that did not flower year after year. A close watch of this was kept for more than ten years, and while the two leaves would invariably be well developed the plants still failed to blossom.

The Elder Barton—His Plant-Collection and the Mystery of His Floras

FRANCIS W. PENNELL

Slightly over a century ago two botanists of the name of Barton, uncle and nephew, were prominent in the scientific life of Pennsylvania. It is from the nephew, Dr. William P. C. Barton, that BARTONIA, the journal of the Philadelphia Botanical Club, derives directly its name. The younger Barton's "Compendium Florae Philadelphicae," published in two volumes in 1818, presented for the first time a detailed enumeration of the plants growing in the vicinity of Philadelphia. Its author was for many years professor of botany in the University of Pennsylvania, and his specimens, illustrative of the flora within ten miles of Philadelphia, came to the Academy of Natural Sciences probably soon after his death in 1856.

But it is of the uncle, Dr. Benjamin Smith Barton, of his plant-collections and projected floras, that this article is written. His herbarium has also come to the Academy, though more recently and by a less direct route. Like his nephew, the elder Barton was long a professor in the University of Pennsylvania. He seems to have been as ardent a botanist, and to have held a wider range of scientific interests. Known in his own day for his work as a teacher and especially to be remembered as the author of the first American text-book of botany, he was likewise keenly interested in the systematic study of our plants. That the elder Barton has also a claim to be commemorated in the name of our journal will appear as we consider the extent of his interest in systematic botany, and discover that he was the first in time of those who have written of the special flora of Pennsylvania.

Dr. Benjamin Smith Barton, who was himself a nephew of David Rittenhouse, the astronomer and mathematician, possessed a mind of high quality. His early ability is shown by the fact that at the age of twenty-three, after two years' study

in the University of Edinburgh and after taking a degree at Göttingen, Germany, he was appointed to the first professorship of natural history and botany in the United States. This was in 1789 in the College of Philadelphia, and two years later on the merging of the College with the University of Pennsylvania he was made professor of those subjects in the latter. To this chair he soon added the then more important professorship of materia medica, in connection with which he accomplished his chief medical work. Later, in 1813, on the death of Dr. Benjamin Rush, he left the congenial chair of materia medica for that of the "practice of physic," the most exalted post in the medical school. This he held until his death two years later, retaining with it his original professorship of natural history and botany, in which for twenty-four years he served the University.

Professor Barton's personality has been presented to us in sharp lines by his nephew in a sketch read before the Philadelphia Medical Society early in 1816. He is shown as studious, diligent and ambitious, and as ever undertaking tasks beyond the strength of a weak constitution. Interested in zoology, Indian lore and archaeology, geography, and in botany in all its aspects, he would start project after project only to leave them for work in some other field. In science he was exacting of detail, and his nephew tells from personal experience of the meticulous precision with which his uncle insisted that every spine of a horny lizard must be counted and reproduced on a drawing. The elder Barton was himself an excellent draughtsman. He collected information in abounding detail, but his nephew says of him that he "wanted, in a great degree, a talent for generalizing." With a vehement, nervous temperament, full of exuberant ambition, yet ever in poor health and so loaded with professional duties as to find little time for his beloved natural science, it is small wonder if the elder Barton's botanical achievements were limited.

It was in the general knowledge of plants, especially in the morphological field, that Professor Barton made his greatest contribution to the progress of American botany. In 1803 appeared his "Elements of Botany, or Outlines of the Natural History of Vegetables." Based upon Barton's own experi-

ence as an instructor, this work filled an important need for the teaching of the science. As already stated, it was the first text-book of botany issued in the United States. As a teacher, inspirer and helper of younger men the elder Barton is chiefly memorable, and of this side of his activity we shall see much in turning to the less known, although peculiarly fascinating side of his botanical interest, his efforts to further the systematic knowledge of our plants.

Before 1803 not only had there been no American text-book of botany, but also no general work giving information about the plants of the United States. Curiously enough, it was in that year that there also appeared the first comprehensive flora of North America. The "Flora Boreali Americana" was in Latin and French, and was published in Paris; its author, André Michaux, was a Frenchman who had spent twelve years at the behest of the French government traveling on botanical exploration through the United States. Although he had visited most of the Atlantic states, had ascended the mountains of North Carolina, had traveled across the northern Alleghanies to reach the prairies of Illinois, and penetrated Canada as far as Lake Mistassini in the interior of Quebec, it was soon apparent to his American contemporaries and immediate successors that there were many species omitted from his flora.

Although not as yet resulting in any work of large scope, a great interest in the systematic study of our plants had been developing among the native American botanists, an interest that sustained a remarkable height in Pennsylvania during the first four decades of the nineteenth century. Comparing those years with these a century later one wonders if we have to-day local botanists more zealous and keen, or whether with our greater facilities for the preservation and comparison of plants our predecessors would not have produced more memorable studies than ours. The elder Barton and his contemporary, the Rev. Dr. Muhlenberg, of Lancaster, inherited a Pennsylvania botanical tradition, begun by John Bartram and carried down to their time by Humphrey Marshall and William Bartram, but they must be given the credit of greatly broadening the lines of botanical interest. Both Muhlenberg and Barton had been collecting specimens toward the preparation of Amer-

ican floras, and, after the publication of Michaux's Flora in 1803, both seem to have felt the more determined to bring their tasks to completion. Muhlenberg doubtless had the best knowledge of North American plants of any man of his time and it is to be deplored that with his keen insight he has left no more substantial record than the "Catalogus Plantarum Americae Septentrionalis" issued in 1813, a catalog-summary of the flora of the United States and Canada. Muhlenberg and Barton both died in the same year, 1815, and both left their botanical collections to the American Philosophical Society rather than to the newly established Academy of Natural Sciences, the result of which action was that their historic herbaria remained neglected and finally forgotten until nearly the close of the century. Their herbaria have now been deposited by the Philosophical Society in the custody of the Academy, and are proving a fruitful source of information about the botanical interests of 1800.

The entire herbarium of Professor Barton appears to have been brought together in the years from 1797 to 1807. It numbers 1,674 specimens. No effort seems to have been made to obtain all species, and the collection is far inferior to that of Muhlenberg in variety of plants represented. Nor were the specimens chiefly gathered by Barton himself, as the Muhlenberg Herbarium had been built up almost wholly by Muhlenberg's own efforts. It would appear that Professor Barton devoted little of his own time to the gathering of his Herbarium, but felt that such a collection was so important a desideratum of American botany that he was continually attempting to interest his students and others in the project.

If we may judge from his own contributions to the Herbarium, Professor Barton's travels were not extensive nor were they undertaken for the purpose of obtaining botanical specimens. Thus, although he was early interested in analyzing plants, there are no specimens whatever from that excursion of 1785, when, a youth of nineteen, he accompanied the surveying commission that established the western boundary of Pennsylvania. The earliest date is twelve years after this, and eight years after the commencement of Barton's profes-

sorial career in Philadelphia. In 1797 we see him taking a trip up the Hudson by boat, then across New York state by Schenectady, Onondago and Geneva to Niagara Falls; in 1802 he was in the mountains near Staunton and Warm Springs, Virginia; in 1805 he made a considerable journey through Havre de Grace, Baltimore and Washington to Frederick County, Virginia, thence home via Hagerstown, Chambersburg and Reading; in 1806 he was at Passaic Falls and Perth Amboy, New Jersey; while throughout these ten years he collected repeatedly around Philadelphia and Germantown. His own collections are frequently signed with the initials "B S B." Barton's own specimens total only 175, and, although collected with some care, they show little evidence of subsequent study by him.

But, beside his own collections, Barton's Herbarium contains specimens from at least twenty-nine other persons. Most of these were contributors of only a few specimens each, and probably were students whose interest was not sustained.* Let us glance rapidly over some of their names, and note the sources of their plants so as to see the territory Barton's Herbarium covered. John Adlum contributed specimens from Lancaster and Lebanon; Peter Custis from Virginia and "450 miles up the Red River"; Mr. Ellicott from Natchez; Mr. "Enslin" from North Carolina and certainly elsewhere in the southern states; Dr. Gray from Southampton, Virginia; Dr. Gregg from the head of Dennis Creek, near Cape May, New Jersey; M. Kin from Pennsylvania and New Jersey; Mr. King from 90 miles and 140 miles from Philadelphia, the latter credited to the "Beech Woods," Pennsylvania; Augustus Shryock from near Chambersburg and on a trip northward to Mifflintown and Lewistown, Pennsylvania; Mr. Steptoe from Great Seneca and Peaks of Otter, Virginia; David Thomas from different localities in north-central Pennsylvania, Elk Lake, Loyalsock, Muncy, Tioga, Towanda, etc.; and Judge Turner from the Ohio and Wabash. These plants may be labeled in the handwriting of the various collectors, but more frequently in Barton's hand or in that of the chief single contributor to the Herbarium, Frederick Pursh.

* A list of the collectors represented, with brief accounts of some of them from the pen of Dr. J. H. Barnhart, is appended to this paper.

Fortunately, the handwritings of Barton and Pursh may be readily distinguished and with this clue it is interesting to unravel the part each played in the amassing of the Barton Herbarium. It is well known that Barton, the professor, encouraged the botanical enthusiasm of Pursh, gardener at the Woodlands estate near Philadelphia, and financed him upon two botanical excursions. The Herbarium contains three series of Pursh's collections labeled in his handwriting and often signed with his characteristic "P": 113 specimens from localities near Philadelphia, as Blockley, "Skuilkill" and Woodlands; 895 specimens, usually bearing surprisingly detailed data, from over eighty indicated localities, gathered on Pursh's southern trip of 1806; and 141 specimens gathered upon Pursh's northern trip of 1807. As Pursh was destined to follow Michaux in the publication of a North American flora, it is worth our while, for this reason as well to explain his affiliation with Barton, to follow from the herbarium specimens his exact routes. Incidentally, we note that these journeys evidently occurred each one year later than the dates given in the preface of Pursh's "Flora Americae Septentrionalis."

In 1806 Pursh may be seen passing from Carlisle, Pennsylvania, by Connedagwinnet and Connegocheaque creeks on to Hagerstown, Maryland, thence down Antietam Creek and across the Potomac River at Harpers Ferry; on to Winchester, Virginia, and to Capon Springs in the mountains to the west, up the Shenandoah Valley to Staunton, thence to Lexington and the Natural Bridge, thence south to the Peaks of Otter in the Blue Ridge and again westward through the present Botetourt County to Sweet Springs, in the present state of West Virginia; in the mountains of Monroe and Greenbrier Counties, West Virginia, where he appears to have wandered rather widely and eventually even to Keeny's Knob in the present Summers County; turning from Sweet Springs southward he is seen crossing again into Virginia and passing the several ridges southward through Craig County and over Salt Pond Mountain to Montgomery County, here visiting the New River; crossing the Blue Ridge and proceeding to the southeast, collecting much abount Rocky Mount in Franklin County, thence

down through Pittsylvania to Mecklenburg Counties, and thence over the line to Northampton County, North Carolina; soon turning northeastward he passed through Greenesville, Southampton and Nansemond Counties to Norfolk, Virginia; while the last specimens of the journey were apparently gathered in Accomac County, Virginia. The trip occupied the entire season as is evidenced by the few dates indicated, and also by the spring flowers gathered on the early part of the course and the autumn flora with which the excursion closed.

The 1807 journey of Frederick Pursh is even easier to trace from the Barton Herbarium, owing to the fact that full dates are given for most of the course. On July 4th he was at Tioga in northern Pennsylvania, on the 9th at Owasco Lake, New York, from the 11th to the 25th at Onondago, where he visited Mr. Geddes; from July 30th to August 4th he made an excursion to Oswego on Lake Ontario; thence until at least August 24th he was again at Onondago; after this occur no more dates but the Herbarium shows him at Johnstown, Glenns Falls, Saratoga and Skeenesborough,* New York, and along Lake Champlain, near Rutland, and in the Green Mountains, Vermont. There are no specimens in the 1806 collection from the high mountains of North Carolina nor in the 1807 collection from the White Mountains of New Hampshire, regions which Pursh in the preface to his Flora claims to have visited. The detailed itinerary available for the former journey leaves no opportunity for such a difficult feat as the ascent of the Carolina mountains, but the small number of specimens from the northern journey, evidently but a partial series of those gathered and omitting various species which his Flora tells us Pursh had collected, would leave us undecided on the White Mountains claim. However, Pursh's journal† of the latter

* Mr. Willard W. Eggleston, of the United States Department of Agriculture and formerly of Vermont, who has carefully reviewed Pursh's collections from Vermont and adjacent territory, states that Skeenesborough is the present Whitehall.

† "Journal of a Botanical Excursion in the northeastern parts of the states of Pennsylvania and New York," published in Philadelphia in 1866, and reprinted by the Onondaga Historical Association in 1923. This journal was found among the Barton papers at the American Philosophical Society by Mr. T. F. James, who was responsible for its first publication.

trip has been published and shows us clearly that he did not reach New Hampshire.

Pursh's specimens contributed to the Barton Herbarium vastly outnumber those made by Barton himself or by all his other assistants together. Pursh's plants are all labeled and the identifications written in his own hand, showing that they received his personal study. Nowhere have I noted a specimen of Pursh's gathering with determination entered in Barton's hand, whereas a large part of the specimens collected by Barton as well as those gathered by many contributors have been identified and labeled by Pursh. Everywhere one notes that Pursh is more particular than his patron about precision of data. The internal evidence of the Barton Herbarium assures us that Pursh was the systematist responsible for the careful naming of the collection, and leads us to suspect that Barton, the professor, took only a moderate interest in strictly systematic botany and was depending upon his able helper to carry out the large plan portrayed in a statement given out in June, 1807. Addressing the newly founded Philadelphia Linnaean Society, of which he had been made the first president, Barton speaks of the extent of his herbarium and of his definite plans for a North American flora: "My own American Herbarium contains several hundred species of North American plants more than are contained in the whole Flora of Mr. Michaux. Through the kindness of friends and pupils I am continually adding to the list. The history of my whole collection is intended for the public. Indeed, I have already made considerable progress in describing these plants."

This year, 1807, signalized by such an optimistic statement, appears, so far as the dates scattered through it can tell us, to be the last in which the Barton Herbarium receive any accessions. Certainly few, if any, specimens were added later than this. That Barton failed to go forward with the amassing of specimens calls for an explanation; and, beside the continuous factor of increasing ill health, I think there is a very obvious reason why 1807 marked the sudden termination of his herbarium's growth.

We have seen that Frederick Pursh had become the actual developer of the Barton Herbarium. Now, Pursh spent the

summer and early autumn of 1807 traveling in the northern states, and apparently in the late autumn or early winter moved from Philadelphia to New York in order to take charge of the Botanic Garden recently established there by Dr. David Hosack and which had been acquired by the state. Pursh remained three years in New York, then took a voyage to the West Indies, and shortly after his return therefrom went to England. There, with the generous patronage of A. B. Lambert, he was able to carry out an independent project of a flora of North America; Pursh's "Flora Americae Septentrionalis," issued in 1814, marked a distinct advance on the earlier flora of Michaux.

After 1807, without his indispensable helper, laboring under the increasing pressure of professorial duties and interests, and in ever feebler health, Professor Barton could not go forward alone with his own long cherished design of a North American flora. Yet one suspects that he only gradually, if ever, relinquished the plan, and lived in the hope that another assistant of Pursh's ability might arise to help him. He aided liberally the young Thomas Nuttall, who was to become the brightest light of the Philadelphia group, and enabled him to make his extensive journey up the Missouri River in 1810. Some time after Barton's death, Nuttall did publish in 1818 his "Genera of North American Plants and a Catalogue of the Species to the year 1817," with the definite idea of adding to Pursh's Flora. But Nuttall's handwriting is not found in the Barton Herbarium, and the whole collection seems to have been ignored by him.

Yet Barton's Herbarium has not remained wholly unused since 1807, for he, himself, seems to have made some use of data gleaned from it for two floras of more modest scope than the ambitious project that we have been considering. At least the first parts, following the Linnaean system from the first to the fourth classes inclusive, of a flora of Pennsylvania and a flora of Virginia, were actually printed, although they have remained almost or quite unknown to the present day. These floras reveal Professor Barton, not merely as dependent upon Pursh for critical identifications, but as himself a keen field-observer, as a student of living plants rather than a "closet"

botanist busied with comparing dried specimens. After noting the dependence of Barton upon Pursh for identifications in his own Herbarium, it has been a happy surprise to note the striking independence and fullness of observations preserved in Barton's "Flora Virginica."

That Professor Barton should have undertaken a flora of Virginia seems especially fitting. The plants of Pursh's southern journey of 1806, nearly 900 specimens, were in his Herbarium. These were nearly all from Virginia, and most of them had been carefully studied and identified by Pursh. We have seen that Barton had himself visited the Shenandoah region of Virginia in 1802 and 1805. The "Flora Virginica" incidentally tells of another visit to this section in 1810, and, as Dr. Barton had brothers living in Frederick and Augusta Counties,* I suspect that his visits to this part of Virginia were frequent. What more likely than that the semi-invalid professor should have spent the available vacation-time of one or several summers there? Certain it is that he carried with him on trips into Virginia Gronovius' "Flora Virginica," and that he carefully checked and improved its descriptions. More carefully than any other American botanist of his time he tells us the flowering and fruiting season of each species, its duration of life, its environment or habitat, and very frequently he informs us of the flower-color and of the uses of the plant by the Indians or for medicinal purposes. An especial line of interest that he diligently pursued was the collecting of colloquial names of plants, and for these Barton's Flora is a mine of information. Yet these details are all fitted into a rigid framework, nor does Barton seem to have preserved specimens as vouchers for his identifications, as would certainly have been done by Pursh.

Barton's "Flora Virginica" of 1812 was primarily a new edition of Gronovius' "Flora Virginica," which had been

* To his brother, Mr. Richard Peters Barton, of Frederick County, Virginia, Professor Barton dedicates one volume of "The Philadelphia Medical and Physical Journal." On his southern trip Pursh appears to have visited R. P. Barton "on the Opequan," while he collected also along the "South River, near Staunton," at "Mr. Barton's," who I suspect was yet another brother.

without an edition for just fifty years. So valuable did Barton esteem this flora, founded on the collections and field-study of John Clayton and on the descriptions of which Linnaeus had based his knowledge of many of the plants of the present eastern United States, that he desired to incorporate it entirely in his revised flora. With slight exception, every word of the 1762 edition of Gronovius was so preserved, even to its title-page and preface. Into this antique framework Barton inserted more than its bulk of new information, synonyms of Michaux, Willdenow, and others, emended descriptions of many species, additional species proposed by various botanists and some by himself, and all the detailed field-observations and economic information that have just been recounted. All matter additional to Gronovius was indicated by asterisk, so that it becomes a simple matter for us to judge of its scope and value.

A few illustrations will make clear Barton's procedure. *Cornus canadensis* is entered with a new Latin description by Barton; then follow six other quoted descriptions or references to the species; then the entry of colloquial names: "Dogberry. Little Dogwood.—Canadian Cornel, or Dogwood, of the English botanists"; then the entry of environment: "On the Blue-Ridge, the North-Mountain, the Alleghany and Laurel mountains: generally in shaded and moist situations"; then the information: "Perennial.—Flowers from May to the end of August. Ripens its fruit from June to September"; then follows a very careful description covering thirty lines of fine type. *Cornus florida* is assigned the following colloquial names: "Dogwood. Dog-tree. Box-tree. New England Box-wood. By these names this species of Cornus is known in the United-States.—Great flowered Dogwood, Florid Dogwood, and Male Virginian Dogwood, of the English writers." *Pothos Putorii,* our skunk-cabbage, receives the following names: "Stinking Pothos, or Skunk-weed, of English writers. —Skunk-weed, Skunk-Cabbage, Polecat-weed, Itch-weed, Hellebore, Ellebore, Irish-Cabbage, Poke, Cow-Collard, Polecat Collard, in different parts of the United-States.—Byorn-blad (Bear's-leaf), and Byorn-retter (Bear's-root) of the

Swedes settled in North America." Surely Barton's note-book was kept busy recording names in each portion of the states that he visited. In his preface he tells us that he has refrained from giving also the Indian names of plants, deferring these to his "larger work on the plants of the United States."

As only few and usually partial references seem to have ever been made in botanical literature to Barton's "Flora Virginica: sive Plantarum, praecipue indigenarum Virginiae Historia inchoata," printed in 1812 in Philadelphia by D. Hearte, it is important to indicate the correct citations of the few new species and new names therein proposed. As the work seems not to have been seen in preparing the Index Kewensis, although cited at second hand for several of the names below, this list becomes of especial value. Before each species is placed the page of the Flora on which it appears and those species not cited in the Index Kewensis are preceded by asterisks.

*(p. 51) ***Bartonia pentandra*** **Barton**

"pumila, aphylla: scapo unifloro, pentandro. In low, wet ground. —Flowers in April."

*(p. 51) ***Bartonia verna***—Rafinesque, Florula Delavarica et Columbica, M. S.

Based on ***Centaurella verna*** Michx.

*(p. 2) ***Chionanthus rosea*** **Barton**

"corollis roseis, seu incarnatis. I am assured that Mr. Clayton discovered in Virginia, and cultivated in his garden, a species, or variety of Fringe-tree, with rose-coloured blossoms. I presume it was nothing but a variety of the common Chionanthus virginica: and it is said that similar specimens of this shrub have been observed in other parts of the United-States."

*(p. 49) ***Frasera officinalis*** **Barton**

Based upon *F. carolinensis* Walt., the new name being considered more appropriate.

*(p. 64) ***Hamamelis communis*** **Barton**

Based upon *H. virginiana* L., the new name being considered more appropriate.

*(p. 67) ***Ilex atramentaria*** **Barton, MS.**

Apparently intended as a synonym of *Prinos glaber* L.

(p. 67) ***Ilex delicatula*** **Barton**

Apparently proposed as a more appropriate name for *I. canadensis* Michx., but with a carefully drawn new description. This is the shrub now known as *Ilicioides* or *Nemopanthus mucronata*.

*(p. 68) ***Ilex nebulosa*** **Barton, MS.**

Apparently intended as a synonym of some species of *Prinos*.

(p. 66) *Ilex religiosa* Barton

Proposed as a new name for *I. vomitoria* Ait., but with a careful new description.

(p. 52) *Ludwigia permollis* Barton

"caule erecto rubello, piloso: foliis alternis, confertissimis, lanceolatis obtusis, suberectis, subtus pilosioribus: floribus axillaribus, brevi-pedunculatis: calycibus exterius pilose-canescentibus, interius subglabris; petalis laete luteis, calycibus paulo majoribus.

"In wet meadows, along with Aletris farinosa, Rhexia mariana, Cymbidium pulchellum, &c.

"Perennial.—Flowers in July and August."

Considered as possibly identical with *L. pilosa* Walt. and *L. mollis* Michx., and the problem carefully discussed.

(p. 13) *Monarda oswegoensis* Barton

Apparently proposed as a more appropriate name for *M. didyma* L., although with a new description taken from Barton's Prod. Fl. Penna. 1: fasc. 1: 34–36.

(p. 13) *Monarda varians* Barton

Proposed as a more appropriate name for *M. fistulosa* L., although with a new description taken from Barton's Prod. Fl. Penna. 1. fasc. 1: 36–38.

(p. 60) *Pothos Putorii* Barton

Evidently proposed as a preferable name for *Dracontium foetidum* L., and with a new description taken from Barton's Prod. Fl. Penna. 1. facs. 2: 70–72.

*(p. 6) ***Utricularia violacea*** **Barton.**

"pumila: foliis radiciformibus fibrosis: floribus purpureo-violaceis. Utricularia purpurea? Walter, Carol. p. 64. In marshes, &c., not uncommon in the southern parts of the state."

Of Barton's "Flora Virginica" no more than 74 pages, merely the beginning, were ever printed. Although dedicated to the professor's botanical students from Virginia, the work seems never to have been distributed to them. Perhaps the author was awaiting the completion of the entire book, but more probably certain pages unsatisfactory or not yet prepared prevented the releasing of the first installment. Although the three copies seen all contain the two last pages of supplementary matter, they all lack pages 25 to 32. The eight missing pages would have concluded the Triandria, and should have comprised most of the sedges and all of the grasses. The

sedges are commenced on pages 23 and 24, but the shortness of their descriptions and the omission of information about habitats and flowering seasons at once show us that Professor Barton had here reached unfamiliar ground. Whether these missing pages were actually printed, as the resumption of pagination on page 33 would suggest; or whether it was estimated that the remaining grasses and sedges would likely occupy this number of pages, as the surprisingly low calculation of eight pages for so many species leads one to suspect—can not be positively said. As however the remaining sedges alone, quite exclusive of the grasses, reviewed as done on pages 23 and 24, would certainly have demanded much more space than the eight missing pages, I think it unlikely that these were ever printed. It seems probable that the remainder of the part was printed as we now have it, but left unbound in the prospect of preparing and inserting these additional pages. Confirmatory of this is the fact that such details as the sequence of Gronovius' and Barton's dedications and prefaces vary in different copies and so show us that these have been independently bound. Such a work Barton would naturally consider unpublished.

That the younger Barton, at least, considered as publication the distribution of printed copies rather than the printing of a book is suggested by his mention of this work in the bibliography of his uncle's papers presented before the Medical Society in 1816. After stating "Printed in 1812," he added: "This work has never yet been published in this country, though I have some reason for believing that Dr. Barton took it with him on his last voyage to Europe [in the summer of 1815]." The inference is that a distribution of copies abroad has probably effected publication. That Dr. Barton sent copies of a flora abroad earlier than 1815 is suggested by a letter of April, 1813, from Dr. Muhlenberg to the young botanist, Dr. William Baldwin: "Dr. Barton, it seems, has published the first 8 classes of his Flora,—but has sent all the copies to England, and none are left for the American botanists who want a Flora most." But have we here a reference to Barton's flora of Virginia or possibly to his flora of Pennsylvania?

One can not but suspect that Professor Barton sent or carried copies of his "Flora Virginica" to England, in the hope

that he could obtain Pursh's aid toward preparing the account of the grasses and sedges, the remainder of the Triandria. That Pursh could treat such critical groups better than Barton is evident from the former's records preserved in the Baron Herbarium. Whether Pursh was asked or was willing to undertake such a task we do not know; it may even be that, at odds with his former assistant or irritated by the latter's independent plans for a North American flora, Barton did not seek the aid of the one man whom it seems to us could have effectively helped him. That Pursh was unfamiliar with the rest of the "Flora Virginica" seems evident from the fact that the new names suggested therein do not appear in his "Flora Americae Septentrionalis," while it would seem that he might have his own ground for serious offence in the fact that Barton omits his name in the introduction and alludes to his assistance only in the remark: "I have derived great assistance from the large herbaria which have . . . been collected at my expense." Indebted as Barton's "Flora Virginica" must stand to Pursh's field and herbarium work, the obligation is none too graciously acknowledged.

There are few copies of Barton's "Flora Virginica" in libraries of the United States, and evidently few in libraries of Europe. Bentham, the English botanist, appears to have seen a copy, yet the work seems not to have been accessible to the industrious compilers of the Index Kewensis. The work is so scarce abroad that Pritzel, who consulted every available library of Europe for the compilation of his "Thesaurus Literaturae Botanicae," had never seen it. In this country I have encountered the work only in the libraries of Philadelphia, where copies exist at the Philadelphia Library, the American Philosophical Society and the Academy of Natural Sciences of Philadelphia. But I have not made for it the thorough search that has been attempted for copies of Barton's Pennsylvania flora.

If the "Flora Virginica" of 1812 be counted rare, what must be said of a work which can not be found in any of the seven chief libraries of Philadelphia, in the Congressional Library at Washington, the library of the New York Botanical Garden, of the American Museum of Natural History or the New York

Public Library, in the library of Harvard University, or in the library of the British Museum in London? Of a work that is not mentioned in Sabin's very comprehensive bibliography of writings dealing with America, an omission that tells us that the book is in no prominent American library? What must be said of a work which is not even mentioned by the younger Barton in presenting his uncle's bibliography, although the claim is made that this lists all the works which have been printed by Dr. Barton "even though some of them have not yet been published?" Moreover, who would be so keenly interested in a flora of Pennsylvania as Dr. William P. C. Barton, who himself was to give the world his two-volume "Compendium Florae Philadelphicae" as early as 1818? One would be almost ready to declare that the elder Barton's "Prodromus Florae Pennsylvanicae" had never existed, if the mention we have of it were not so very circumstantial. It would seem that no reference whatever can be found to it in botanical literature, excepting for the detailed and exact citations of the same author's "Flora Virginica" of 1812.

In ten instances Barton's "Flora Virginica" cites or quotes Barton's "Prodromus Florae Pennsylvanicae," using all the care of reference that would be made to any published work. From it the new species-names, *Monarda oswegoensis*, *M. varians*, and *Pothos Putorii*, were derived. The citations are made to volume 1, fascicle 1 and fascicle 2, with separate pagination for each fascicle. The following citations show us that the same order was followed in the "Prodromus Florae Pennsylvanicae" as in the "Flora Virginica," the pagination of the Prodromus preceding, and that of the Flora following in parentheses:

Fascicle 1:	p. 27.	*Utricularia cornuta* Michx.	(5)
	34–36.	*Monarda oswegoensis* Barton	(13)
	36–38.	" *varians* Barton	(13)
	46, 47.	*Collinsonia canadensis* L.	(14)
	63.	*Commelina longifolia* Michx.	(19)
Fascicle 2:	p. 1– 3.	*Cephalanthus occidentalis* L.	(33)
	22, 23.	*Mitchella repens* L.	(39)
	25.	*Callicarpa americana* L.	(40)
	70–72.	*Pothos Putorii* Barton	(60)
	89, 90.	*Potamogeton lucens* Michx.	(69)

From a comparison of the pagination it becomes at once obvious that the "Prodromus Florae Pennsylvanicae" was a larger and more detailed work, sizes of pages being probably about the same, than was the "Flora Virginica." That this is correct is borne out by the fullness of the sections quoted from it. Fascicle 1 included the first three Linnaean classes, Monandria, Diandria and Triandria; expanding the 32 pages which treat of these classes in the "Flora Virginica" by the apparent increase of pages characteristic of the Prodromus, we find that the descriptive matter in the latter probably occupied about 80 pages, and was preceded by 16 or 18 preliminary pages. Calculating in like manner, Fascicle 2, treating only of the Tetrandria, evidently consisted of about 96 pages. Very probably each fascicle consisted of 96 pages, the early part of the first fascicle comprising a considerable body of introductory discussion.

As the "Flora Virginica" does not extend beyond the first four Linnaean classes, we can not prove from it whether the "Prodromus Florae Pennsylvanicae" may not have included more than this. If eight classes of the Prodromus (applying to this work Muhlenberg's rumor) had been printed and sent to Europe, the flora would have been much longer than the 192 pages calculated above. A rumor is but a rumor however, and we have no evidence that the allusion to "eight" classes be not an error, or that the "Flora Virginica" was not rather the flora intended. Muhlenberg would have been more keenly interested in a flora of Pennsylvania than in one of Virginia, but the date of his letter, April, 1813, is suspiciously soon after the printing of the "Flora Virginica" in 1812. It seems probable that he would be hearing of it.

Whatever the limits of the printed "Prodromus Florae Pennsylvanicae," the excerpts quoted in the "Flora Virginica" show it have been a study of as careful workmanship as that book itself, and to have evidently contained yet more copious notes and detailed descriptions. What has become of it? The elder Barton is known to have held exacting standards, he evidently long withheld his printed works from distribution or "publication," so one wonders whether he felt that the work had failed to reach the level he had set for it,

and whether he may not have destroyed it himself. One hopes not, and that some day, either in this country or in England, we may chance upon a copy of this precious work.

That, if found, the "Prodromus Florae Pennsylvanicae" would prove a work of outstanding merit seems certain. Quite surely it would fail to meet one of our standards of to-day—its records would not be based upon preserved herbarium specimens, for few plants from Pennsylvania survive in the Barton Herbarium. That such specimens are wanting shows us that the work was not undertaken with the aid of Frederick Pursh and so before 1807. The Prodromus, doubtless, was composed in main part between 1807 and 1812, and was based upon Barton's own acquaintance with the plants of Pennsylvania. The last fact would be the reason for its value, since even to-day, over a century after Professor Barton's labor, one confesses how rarely we have had records and field-observations such as his. I think that the "Prodromus Florae Pennsylvanicae" would prove significant because of its information of the flowering and fruiting seasons, the duration, the habitats, the history and the uses of our plants, and would be found to contain colloquial names beyond any work that has been produced up to the present day.

Surely such are reasonable inferences to draw from Barton's Virginia flora as to the nature of his larger Pennsylvania flora. We may never recover the latter, but, should we do so, no work could prove of more live interest to us as botanists of Pennsylvania. Doubly valuable would the work be to us of the Philadelphia Botanical Club, because Professor Benjamin Smith Barton made his studies in and near Philadelphia and because our club's publication bears the name Bartonia. Could we inspect the "Prodromus Florae Pennsylvanicae," I think that we should find ourselves as proud that our journal should bear the name of the elder Barton, first author of a flora of our state, as that of the younger Barton, who first gave us a detailed flora of the vicinity of our city.

Brief Sketches of some Collectors of Specimens in the Barton Herbarium

JOHN HENDLEY BARNHART

[FOREWORD. By special invitation, Dr. John H. Barnhart of the New York Botanical Garden, the foremost authority on the bibliography and history of American botany, has prepared these brief sketches of some of those whose specimens are represented in the Barton Herbarium. These are those about whom there is on record some information. Besides these, however, there are also the following about whom no, or only slight, record has been found: B. Baldwin, P. Beasley, Israel Collins, Peter Custis, Dr. Gray of Southampton, Virginia, Dr. Gregg, Augustus Shryock, Judge Turner, and Dr. Walmsley. Some of these were doubtless medical students in Barton's classes. The General Alumni Catalogue of the University of Pennsylvania shows: Thomas Walmsley, M.D. 1803, died 15 August, 1806, at Elizabethtown, Md.; Peter James Beasley, M.D. 1807, died at Huntsville, Ala.; Peter Custis, M.D. 1807; some of the others may have been students who never took degrees.

It is interesting to realize from what a wide range of botanists Prof. Barton obtained plants, and yet to see that contacts with all of these were evidently made in the United States. Thus Delile, famous for his studies of Egyptian plants, and Horsfield, famous for his work on the flora of Java, were students here, the latter being one of Barton's pupils. The accounts are thought to be worth presenting, both as showing the extent of Barton's intercourse and as giving a glimpse of American botanical collectors about 1800.

Dr. Barnhart has not prepared any sketch of Dr. Benjamin Smith Barton himself, as his biography has been partially presented in the preceding narrative. But after the manner of several of these sketches, it may be of interest to call attention

to the two different genera which have been named in Barton's honor. Of these the earlier is *Bartonia* of Muhlenberg, dating from 1801 and applied to a peculiarly small-flowered genus of the Gentianaceae. Doubtless thinking Professor Barton worthy of more spectacular recognition, a second *Bartonia* was proposed by Nuttall* for a "splendid genus" of the Loasaceae, gathered in flower on the journey up the Missouri made by him at Barton's expense. This plant interested Professor Barton so strongly that, only a few days before his death, he wrote a memoir about it, which was later read by the younger Barton before the American Philosophical Society. Unfortunately however, following the principle of priority, botanists have long been agreed to assign Barton's name to the insignificant plants first called by it.

The Editor]

JOHN ADLUM was born 29 April 1759, at York, Pennsylvania. He was a soldier in the Revolution, and became a surveyor and civil engineer. From 1795 to 1798 he was an associate judge of Lycoming County, Pennsylvania. In 1799 and 1800 he was a major in the regular army, and was thereafter always known as "Major Adlum," though he was later a brigadier-general in the Pennsylvania militia. After his marriage, at the age of 54, he lived for a time in Maryland, and then settled permanently at Georgetown, in the District of Columbia, where he established an experimental vineyard. He was an enthusiastic cultivator of grapes, of which he grew many varieties; he was the first to bring the Catawba grape to public notice. His "Memoir on the cultivation of the vine in America" (1823) was the first separate book on the grape published in this country. He died at Georgetown, 1 March 1836. It was for him that Rafinesque named the beautiful genus *Adlumia*.

ZACCHEUS COLLINS was born 26 August 1764, in Philadelphia, and died there, 12 June 1831. He was a man of wealth, a member of the Society of Friends and of various humane and scientific societies, and well known as a philanthropist.

* This genus dates from 1812, and was first described by the English botanist Sims, to whom it must be technically credited. Sims received the name from Pursh, who had concurred with Nuttall in dedicating this plant to their common patron.

He was, to use the words of W. P. C. Barton, in the dedication of his "Compendium florae Philadelphicae," "a patient and successful cultivator" of the science of botany, but he published nothing, and is remembered chiefly on account of the high esteem in which he was held by his contemporaries. The genus *Collinsia* was named by Nuttall in his honor.

ALIRE RAFFENEAU-DELILE was born 23 January 1778, at Versailles, France. When only twenty years of age he was one of the scientists chosen to accompany the Napoleonic expedition to Egypt, and was placed in charge of the botanic garden then established in Cairo. From 1803 to 1805 he was French vice-counsel at Wilmington, North Carolina; he then studied medicine in New York City, receiving the degree of M. D. from Columbia College in 1807, and returning to France the same year. The last thirty years of his life were spent as professor at the university of Montpellier, and director of the botanic garden there. He is best known for his elaborate works on the flora of Egypt. He died at Montpellier, 5 July 1850. Two plant-genera, *Delilia* of Sprengel and *Raffenaldia* of Godron, have been named for him.

CHRISTIAN FREDERICK DENKE was born 8 September 1775, at Bethlehem, Pennsylvania. He was a Moravian clergyman, educated at Nazareth Hall, and teacher there from 1796 to 1800. In 1800 he went to Fairfield, in western Ontario, as a missionary to the Indians of Canada, remaining there for eighteen years; after a few years at his old home in Bethlehem, he went to North Carolina, where he was pastor at Hope (1820–22) and at Friedberg (1822–31). After his retirement, in 1831, he spent the remainder of his life at Salem, North Carolina, where he died 12 January 1838. He was long interested in botany, and collected many plants in the various localities where he lived. Among his botanical friends and correspondents were Muhlenberg and Schweinitz.

ANDREW ELLICOTT was born 24 January 1754, in Bucks County, Pennsylvania. His youth was spent at Ellicott's Mills (now Ellicott City), Maryland, and he became a civil engineer. He was for many years engaged upon government surveys,

marking the state boundaries of Virginia, Pennsylvania, New York, Georgia, Alabama, and Florida, and laying out the city of Washington and several towns in western Pennsylvania. At one time he was a member of the Maryland legislature, and at another was secretary of the Pennsylvania land-office. In 1812 he became professor of mathematics at West Point, where he died 29 August 1820. He was father-in-law of David Bates Douglass, long a professor at West Point, and like him, collected plants when in regions little known botanically.

ALOYSIUS ENSLEN was an Austrian gardner who was sent to America as a plant-collector about the year 1800 at the expense of Prince Liechtenstein. He spent several years in this country collecting chiefly in the southern states. His herbarium is now included in the collections of the Hofmuseum in Vienna. He died before 1818. Genera named *Enslenia* have been proposed both by Rafinesque and Nuttall.

THOMAS HORSFIELD was born 12 May 1773, at Bethlehem, Pennsylvania. He received the degree of M.D. from the University of Pennsylvania in 1798. In the following year he visited the island of Java, while surgeon of a merchant vessel, and upon his return to Philadelphia began to prepare at once for a second, definitely scientific voyage to Java, which he undertook in 1801. Entering the service of the Dutch government, he began his researches in the vicinity of Batavia, but after a few years extended them to all parts of the island. He remained in Java, always in some official capacity, for eighteen years: under the Dutch regime until 1811, throughout the British occupation, from 1811 to 1816, and again under the Dutch from 1816 until 1819. He was keeper of the Museum of the East India Company in London from 1820 until his death nearly thirty years later, 14 July 1859. He published several important works on zoology and botany. Three plant genera have been, at different times, named in his honor, and the oldest, *Horsfieldia* of Willdenow, is in current use.

MATTHIAS KINN was a German who came to America in the latter part of the eighteenth century to collect plants and seeds

for exportation to his native land. He spent most of his time in the wilderness, traveling widely, especially in the south, east of the Mississippi; in fact, there seem to be grounds for believing that he collected west of that river. He dressed like an Indian, was known as the "Indian plant hunter," and after his years in the wilds became uneasy in the surroundings of civilization. His personal appearance must have been very striking. "Full six feet high, and broad-shouldered, with enormous bones, but with no flesh on them, he was literally 'the picture of death.'" His home, in so far as he had one, was at Germantown, near (now in) Philadelphia, the port from which he shipped his seeds and plants. While there he lived with a German named Kurtz, already well established before his arrival; he was also friendly with another wealthy German named Meng, who seems to have been his financial representative during his long absences. Both Kurtz and Meng had fine gardens, which owed much to Kinn; no trace remains of the garden of Kurtz, but that of Meng now forms part of Vernon Park, and still contains rare trees introduced by Kinn. Kurtz died in 1816, and Meng soon after; rarely if ever did Kinn again appear in Germantown. Nuttall exchanged plants with him in 1826; but he died within a few years afterward, for in 1834 Nuttall refers to him as "the late arduous and eccentric Prussian collector, Mr. Kinn." Various old herbaria, both in Europe and America, contain specimens collected by him, labeled in a large, bold hand, "M. Kinn," or, perhaps even oftener, "M. Kin," for he seems to have regarded the last letter of his name as superfluous.

JOHN LYON was a Scottish gardener who came to America about 1800, and made his home in Philadelphia. He collected extensively in the southeastern states, and was responsible for the introduction of many American plants into English gardens; among these were *Nyssa ogeche*, *Lophiola americana*, *Iris fulva*, *Pieris floribunda*, *Diphylleia cymosa*, *Stenanthium gramineum*, and *Kneiffia glauca*. He visited England in 1806 and in 1811–12 with collections of living plants, and he is known to have possessed an important herbarium, which has

since disappeared. It was while he was on a collecting trip, between 1814 and 1818, that he fell a victim to a dangerous epidemic; he died and was buried at Asheville, North Carolina. Nuttall named for him the genus *Lyonia*.

Bernard McMahon was born in Ireland about 1775, and came to America in 1796. He settled in Philadelphia, where he established a garden and developed the largest seed-business then conducted anywhere in the United States. He exported many seeds of native plants, and in this manner introduced many of them to foreign growers. He was a man of education, and enjoyed the acquaintance of various distinguished men. His seed-store became a meeting-place of botanists such as Nuttall, Baldwin, and Darlington. His "American gardener's calendar," first published in 1806, went through many editions, even long after his death. He died in Philadelphia, 16 September 1816. In his memory, Nuttall named the genus *Mahonia*.

André Michaux was born 7 March 1746, at Satory, near Versailles, France. After three years of botanical exploration in Persia, he spent ten years, 1786 to 1796, in the United States, under the auspices of the French government. He collected both living and dried plants, and traveled from Hudson Bay to Florida, and from the Atlantic to the Mississippi. These collections formed the basis for the first general flora of North America, published at Paris in 1803, under the editorship of Louis Claude Marie Richard (1754–1821). Richard's name does not appear on the title-page, and it is doubtful how much of its excellence the work owes to him, and how much to Michaux, who did not live to see its appearance. He accompanied the famous French exploring expedition of 1800–05, and died in Madagascar, 13 November 1802. Several genera have been named for Michaux, the oldest, *Michauxia* L'Heritier, being an oriental genus.

Frederick Pursh (Friedrich Traugott Pursch) was born 4 February 1774, at Grossenhain, Saxony. He became a gardener, preparing for his profession and studying botany as

well at Dresden. In 1799 he visited America, and remained for twelve years, working as a gardener and landscape architect in Baltimore, Philadelphia, and New York, and traveling widely, collecting plants with a view to the publication of a flora of North America. While in this country he made the acquaintance of all of the botanists, and studied all the important collections of living and dried plants, here. In 1811 he sailed from New York to England, where, under the patronage of Aylmer Bourke Lambert (1761–1842), he prepared his flora for publication; it appeared early in January, 1814. A few years later he went to Canada, to continue his botanical explorations, but died at Montreal, 11 July 1820.

Constantine Samuel Rafinesque was born 22 October 1783, at Galata, the European residential district of Constantinople, Turkey, his father being a French merchant then residing there, and his mother being of German parentage. He was educated in Italy; he was a precocious child, and became at an early age a student of the natural sciences, especially botany. He spent three years in Philadelphia, 1802–05; then lived for ten years in Sicily; in 1815 he returned to the United States, which became his permanent home. From 1819 to 1825 he was a professor at Transylvania University (now the State University of Kentucky), and in that capacity was the first resident botanist west of the Alleghanies. For the remainder of his life his home was in Philadelphia, where he died 18 September 1840. He was brilliant but eccentric; his contemporaries regarded him as mentally unbalanced, especially in the latter part of his life, and consequently ignored much of his published work, which is now more charitably judged.

Winthrop Sargent was born 1 May 1753, at Gloucester, Massachusetts. He graduated at Harvard in 1771, and, after serving for several years as captain of a merchant vessel belonging to his father, was an officer in the American army throughout the Revolution. He was appointed surveyor of the Northwest territory in 1786, and from 1790 to 1801 was territorial governor of Ohio. He was a member of several scientific societies, and published in 1793, in the Memoirs of

the American Academy, a list of forest and other trees, northwest of the River Ohio. He died at New Orleans, Louisiana, 3 June 1820.

David Thomas was born 5 June 1776, in Montgomery County, Pennsylvania. Of Quaker parentage, he became a civil engineer by profession, and upon his removal in 1805 to Aurora, Cayuga County, New York, he became chief engineer of the western section of the Erie Canal. Later he was engineer of the Welland Canal in Ontario. His chief scientific activities were in horticulture, especially pomology, and most of his contributions to literature appeared in the "Genessee Farmer." All his life, however, he was interested in botany, and he contributed several technical, though brief, botanical papers to the "American Journal of Science." He was also the author of a book entitled "Travels through the western country in the year 1816"; this was published at Aurora in 1819. He died at Aurora, 5 November 1859. His son, John Jacobs Thomas (1810–1895), was one of the most famous of American pomologists.

Pierre Jean Francois Turpin, the well-known French botanical collector, artist, and writer, was born 11 March 1775, at Vire, Calvados, and died at Paris, 1 May 1840. He was in Hispaniola (Haiti or Santo Domingo) twice before the year 1800, studying, collecting, and painting the plants of the island. About 1802 he was a teacher in Philadelphia; near the end of that year he returned to France, where he spent the remainder of his life.

General Notes

Recent Deaths. Since the last issue of BARTONIA our Club has lost four members by death. Charles D. Lippincott, of Swedesboro, New Jersey, Dr. C. D. Fretz, of Sellersville, Pennsylvania, John T. Pennypacker, of Wilmington, Delaware, and John E. Overholtzer, of Norristown, Pennsylvania, had all been members of the Club since 1892, the first named being one of its founders. Mr. Lippincott had long been a student of the flora of Gloucester County, and his extensive herbarium was presented to the Local Herbarium of the Academy several years ago. Dr. Fretz was equally interested in the flora of Bucks County, of which he has published a catalogue, and has likewise presented his herbarium to the Academy. In our next issue we hope to give accounts of the lives and botanical interests of both Dr. Fretz and Mr. Lippincott.

We have also lost by death one Corresponding Member, Eugene P. Bicknell, of New York City, so well-known as a discriminating student of our eastern flora. It is only necessary to call attention to the new understanding of our species of such genera as *Sisyrinchium* and *Sanicula* to realize how our science has benefited by his keen insight. He was chiefly a field-botanist, a student of plants as they grow. Although a business man, who could only devote occasional opportunities to botany, his contributions to science have been of the highest quality.

Program of Meetings of the Philadelphia Botanical Club from January, 1924, to December, 1925

1924

Date	Subject	Speaker	Attendance
Jan. 24	Alpine Flora of Switzerland	Dr. J. W. Harshberger	23
Feb. 28	Historical collections in the Academy Herbarium	Dr. F. W. Pennell	22
Mar. 27	Alpine Flora of the Selkirks	Dr. Wm. R. Taylor	18
Apr. 24	Some changes in the aspect of the Local Flora List	Bayard Long	21
May 22	Wayside collecting in Atlanta & Savannah	Lee Sowden Joseph Crawford	21
Sept. 25	Summer Botanical experiences	Members	14
Oct. 23	"Collecting in the Southern Hemisphere"	Dr. Henry Leffmann	20
Nov. 20	Adventuring in Newfoundland, 1924	Bayard Long	21
Dec. 18	My summer's experiences in the Dry Tortugas	Dr. Wm. R. Taylor	22

1925

Jan. 22	Distribution of plants in the Southern States	Dr. Edgar T. Wherry	31
Feb. 26	Collecting in the Southern Alleghenies in June	Lee Sowden	17
Mar. 26	The Flora of Java	Dr. Wm. Seifriz	28
April 23	Atlantic Coastal Plain Flora from Nantucket to Florida	Dr. J. W. Harshberger	20
May 28	The Flora of Orr's Island, Maine	Dr. Rodney H. True	19
Sept. 29	Summer botanical experiences	Members	—
Oct. 22	Persistence of some of our Native Plants	George Redles	17
Nov. 19	The Kew Gardens	Dr. D. Walter Steckbeck	25
Dec. 23	Flora of Mt. Desert Island, Maine	Dr. Edgar T. Wherry	31

Officers of the Philadelphia Botanical Club for 1924-1925

1924	1925
President—HARRY W. TRUDELL	JOHN M. FOGG, JR.
Vice Pres.—J. C. BOYLE	C. S. WERTSNER
Secretary—J. M. FOGG, JR.	R. R. DREISBACH
Treasurer—ARTHUR N. LEEDS	ARTHUR N. LEEDS
Curator—BAYARD LONG	BAYARD LONG

Officers and Members of the Philadelphia Botanical Club, 1926

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JOSEPH CRAWFORD, *Vice-President*
ROBT. R. DREISBACH, *Secretary*
ARTHUR N. LEEDS, *Treasurer*
BAYARD LONG, *Curator*

ACTIVE MEMBERS

	Elected
J. W. Adams, 108 West Wishart St., Philadelphia, Pa.	1925
Edwin B. Bartram, Bushkill, Pa.	1906
Russell Bebbler, 135 East Phil Ellena St., Germantown, Pa.	1919
Walter M. Benner, 5636 Loretta St., Frankford, Pa.	1912
George M. Beringer, 501 Federal St., Candem, N. J.	Founder
C. E. Bliss, Welsbach Co, Gloucester, N. J.	1924
John A. Borneman, Norwood, Pa.	1912
Dr. Carl Boyer, Wagner Institute, Philadelphia, Pa.	1926
J. C. Boyle, 223 Kenmore Rd., Brookline, Pa.	1919
Rev. T. R. Brendle, Green Lane, Montgomery Co., Pa.	1918
Herman G. Brinkman, 723 West Huntington St., Philadelphia, Pa.	1919
Otway H. Brown, Cape May, N. J.	1925*
Dr. Herman A. Burgin, 63 West Chelton Ave., Germantown, Pa.	1915
James J. Burk, Addingham, Pa.	1919
Van Buren Connell, 2018 Chestnut St., Philadelphia, Pa.	1924
Dr. Albert Cornog, 5836 Lansdowne Ave., Philadelphia, P.	1923
Joseph Crawford, Phipps Inst., 7th & Lombard Sts., Phila., Pa.	Founder
J. M. Detz, 2124 Van Pelt St., Philadelphia, Pa.	1926
L. N. Dorsey, 5014 Schuyler St., Germantown, Pa.	1919
F. E. Draper, 2008 Broadway Camden, N. J.	1921

* Corresponding Member from 1908.

ROBERT R. DREISBACH, 612 W. Olney Ave., Philadelphia, Pa. 1922
DR. JOHN W. ECKFELDT, 6312 Vine St., Philadelphia, Pa..... 1892
JOHN M. FOGG, JR., Dep't Botany, Univ. of Penna., Phila, Pa. 1921
JOHN S. FRANKENFIELD, 236 No. 53rd St., Philadelphia, Pa. 1920
J. H. GROVE, New Egypt, N. J. 1905
V. HAGUE, North Wales, Pa. 1924
DR. JOHN W. HARSHBERGER, 4839 Walton Ave., Philadelphia, Pa. 1911
F. F. HUBER, Pennsburg, Pa. 1911
EDWIN C. JELLETT, 118 Herman St., Germantown, Pa. 1919
GEORGE JOHNSON, 803 Edgmont Ave., Chester, Pa. 1922
DR. ARTHUR A. JONES, 1810 Jefferson St., Philadelphia, Pa. 1897
DR. IDA A. KELLER, 4424 Osage Ave., Philadelphia, Pa. 1892
REV. T. V. KISTLER, Pennsburg, Pa. 1911
PROF. W. A. KLINE, Ursinus College, Collegeville, Pa. 1911
DR. HENRY A. LAESSLE, 59th and Market Sts., Philadelphia, Pa. 1894
DR. H. PEARCE LAKIN, 14 E. Main St., Lansdale, Pa. 1906
MRS. H. PEARCE LAKIN, 14 E. Main St., Lansdale, Pa. 1906
HENRY A. LANG, 138 Sumac St., Philadelphia, Pa. 1901
DR. CHAS. H. LA WALL, 39 S. 10th St., Philadelphia, Pa. 1896
ARTHUR N. LEEDS, 5321 Baynton St., Germantown, Pa. ..... Founder
MORRIS E. LEEDS, 5321 Baynton St., Germantown, Pa. ..... Founder
DR. HENRY LEFFMANN, 1839 N. 17th St., Philadelphia, Pa. 1922
DR. T. MONTGOMERY LIGHTFOOT, 5935 Green St., Germantown, Pa. 1892
BAYARD LONG, 250 Ashbourne Rd., Elkins Park, Pa. 1906
MAYNE REID LONGSTRETH, 1420 Chestnut St., Philadelphia, Pa..... 1892
PHILIP W. MARETT, 6604 Limekiln Pike, Philadelphia, Pa..... 1920
DR. A. S. MARTIN, Norristown, Pa. 1899
DR. H. B. MEREDITH, 208 N. 34th St., Philadelphia, Pa. 1920
JOHN G. MONTGOMERY, 5539 Thompson St., Philadelphia, Pa. 1919
ADOLF MÜLLER, Box 66, Norristown, Pa. 1920
DR. FRANCIS W. PENNELL, Moylan, Pa. 1910
HAROLD W. PRETZ, 368 Union St., Allentown, Pa. 1909
J. W. PRINCE, 5439 Berks St, Philadelphia, Pa..... 1924
EVAN RANDOLPH, 116 S. 3rd St., Philadelphia, Pa..... 1917
GEORGE REDLES, 207 E. Wister St., Germantown, Pa..... 1917
DR. W. H. REED, Jeffersonville, Pa. 1892
CHARLES C. ROBERTS, Lansdowne, Pa. 1926
EDWIN I. SIMPSON, 434 Real Estate Trust Bldg., Philadelphia, Pa. 1907
DR. D. WALTER STECKBECK, University of Pennsylvania, Philadelphia, Pa. 1925
LEE SOWDEN, 3823 Oak Road, East Falls Sta., Philadelphia, Pa..... 1901
HUGH E. STONE, Haverford, Pa.....1924*
DR. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. ..... Founder
WILLARD A. STOWELL, 41 Delawareview Ave., Trenton, N. J. 1920

* Corresponding Member from 1893.

J. Fletcher Street, 1120 Locust St., Philadelphia, Pa. 1918
Dr. William Randolph Taylor, University of Pa., Phila., Pa. 1921
W. R. Thomas, Custom House, Philadelphia, Pa. 1924
H. R. Thompson, 5016 Schuyler St., Germantown, Pa. 1920
Harry W. Trudell, 2030 E. Madison St., Philadelphia, Pa..... 1915
Dr. Rodney H. True, University of Pennsylvania, Philadelphia, Pa. 1925
Walter Van Der Hengel, 63rd & Overbrook Ave, Overbrook, Pa. 1922
Clarence E. Varnum, Atco, N. J. 1923
Robert F. Welsh, 142 S. 4th St., Philadelphia, Pa. 1909
C. S. Wertsner, 211 N. 13th St., Philadelphia, Pa. 1920
J. Gilbert Williams, 1517 N. 58th St., Philadelphia, Pa..... 1919
Edward W. Winsor, College Farm, New Brunswick, N. J..... 1920

HONORARY MEMBERS

George W. Bassett, 3148 W. Ironside Road, Fairview, Camden, N. J. 1904*
John J. Tyler, 107 E. Johnson St., Germantown, Pa..... 1919
Samuel S. Van Pelt, 59 Bethlehem Pike, Chestnut Hill, Pa.....1902*
Dr. Edgar T. Wherry, Department of Agriculture, Washington, D. C. 1925

CORRESPONDING MEMBERS

Charles C. Bachman, Slatington, Pa. 1908
Mrs. Elizabeth G. Britton, N. Y. Botanical Garden, N. Y. City. 1895
Dr. Nathaniel Lord Britton, N. Y. Botanical Garden, N. Y. City 1892
Rev. J. S. Bunting, Macon, Ga. 1907
Stewart H. Burnham, Cornell University, Ithaca, N. Y. 1911
A. Arthur Heller, Chico, Calif. 1893
James J. Moore, 6140 Nassau Road, Philadelphia, Pa. 1919
W. A. Poyser, Hammond, Ind. 1906
Charles F. Saunders, Pasadena, Calif 1893
Dr. John K. Small, New York Botanical Garden, New York City 1893
Dr. Campbell E. Waters, Washington, D. C. 1904
Dr. Heber W. Youngken, Mass. College of Pharmacy, Boston, Mass. 1918

ASSOCIATE MEMBERS

Samuel Newman Baxter, Fernhill Park, Germantown, Pa.....1926†
Dr. Joseph S. Illick, Mont Alto, Pa. 1925

RECENTLY DECEASED MEMBERS

	Died
Eugene P. Bicknell, Corresponding	Feb. 9, 1925
Dr. C. D. Fretz, Active	Aug. 17, 1926
Charles D. Lippincott, Founder	Jan. 19, 1926
John E. Overholtzer, Active	Dec. 23, 1925
John T. Pennypacker, Active	March 5, 1926

* Elected Active Members on these dates.

† Active Member from 1918.

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No. 10 1927-1928

BARTONIA

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FIG. 1. *Chelone cuthbertii*, growing at Elko, Virginia.

FIG. 2. *Chelone lyoni*, growing in Pisgah Forest, North Carolina. These and the succeeding photographs were taken by Edgar T. Wherry.

BARTONIA

PROCEEDINGS OF THE PHILADELPHIA BOTANICAL CLUB

No. 10 PHILADELPHIA, PA. 1927–1928

Chasing Chelones[1]

EDGAR T. WHERRY

Early in September, 1924, while riding in an automobile along the road from Washington to Upper Marlboro and Annapolis, I noticed a plant which looked strange in the roadside ditch near Hills Bridge, in Anne Arundel County, Maryland. Mr. E. J. Besson, who was driving, at once stopped to permit it to be examined more closely; it proved to be a purple-flowered species of *Chelone,* quite distinct from the common *C. glabra* of the region, and in manuals fitting most closely the description of *C. obliqua* L. It then came to mind that Mr. J. E. Benedict, Jr., of Washington, had mentioned the finding of this plant at the same locality several years previously, although no particular importance was at that time attached to the find. A bit of the *Chelone* was pressed in newspaper and forwarded to Dr. Francis W. Pennell, who immediately pointed out the significance of this discovery; the description of *C. obliqua* in the manuals appeared to be based chiefly on a plant from the lower Ohio valley, whereas the material to which Linnaeus assigned that name had been collected by Clayton in Virginia, and probably on the Coastal Plain, over 175 years ago. In the latter region, however, the plant was "lost" in the sense that there were no specimens

[1] Presented in abstract, with lantern-slides, at the meeting of the Philadelphia Botanical Club, December 22, 1927.

from Virginia or Maryland in any American herbarium, and no data as to whether it was still growing at any locality in this part of the country. As a result, it had never been possible to compare specimens from the type region and from the central United States, to ascertain whether they were identical or not; but its rediscovery on the eastern Coastal Plain now made possible direct comparison.

In the latter part of August of the following year Dr. Pennell came to Washington, and Mr. Benedict drove us out to the locality. The purple *Chelone* proved to grow on both the Anne Arundel and Prince George County sides of the Patuxent River, in thickets on moist subacid sandy soil. A variety[2] of *C. glabra* with long spikes of greenish-white flowers occurred in the same vicinity, but was restricted to circumneutral soil in the open river marsh, and there seemed no tendency of the two to mingle or to hybridize. Most interesting of all, however, was the fact that the purple species was found to possess, as compared with the plant which had been passing under the name *C. obliqua* in the Ohio valley, differences of varietal rank. Another colony with similar features was subsequently found 40 km. further south, in a subacid cypress swamp east of Bowens, in Calvert County, Maryland.

It was then in order to try to rediscover Clayton's original locality for *Chelone obliqua*; but first it seemed desirable to look up another purple *Chelone*, namely *C. grimesii*, which had been collected by Professor E. J. Grimes, of William and Mary College, shortly before his death in 1921, and a specimen of which had reached the Gray Herbarium and been subsequently described and named by Mr. C. A. Weatherby. This had sessile leaves, and as the plate published by Miller,[3] representing a plant grown from roots sent to England by Clayton, showed rather obscure petioles, some doubt remained as to whether "*C. grimesii*" might not really be the original *C. obliqua*.

We stayed over night at Williamsburg, Virginia, and took an early morning train to Elko, in Henrico County, where the

[2] *C. glabra ochroleuca*, see below, p. 22.

[3] Philip Miller, Gard. Dict. 1:62, pl. 93. 1756.

specimen of *Chelone grimesii* had been collected. About one kilometer west of the station we were much pleased to come upon the plant, growing in moist subacid to mediacid peat, and to find that it was not at all rare, but occurred at frequent intervals for 3 kilometers along the track, practically to the station of Poplar Springs. Full data as to the appearance of this plant in fresh condition being now in hand, the next point to be looked into was whether it or the Hills Bridge species grew in the region where Clayton had collected.

John Clayton was employed, in the early 1700's, at Gloucester Court House, and the majority of the specimens which he sent to Gronovius, and which formed the basis for the latter's classic "Flora Virginica," probably came from that vicinity. There being no railroads in Gloucester County, and the roads having until recently been none too good, modern botanists have neglected visiting Clayton's old collecting grounds; but with the advent of the hard-surfaced road and the motor-bus, transportation there is no longer a serious problem. We had a comfortable ride one afternoon from Lee Hall on the C. & O. Railroad to Gloucester Court House, where we spent the night in the local hotel. The next morning we hired an auto to take us 13 kilometers (8 miles) northeastward to Soles, in Mathews County, where Clayton had lived. His house, which had been located 1 km. southwest of that place, proved to have entirely disappeared, although Mr. Leigh, who lives in a modern building on the property, informed us that he had struck the old foundation stones while digging in his yard.

Soles is in the northwestern part of the Mathews Quadrangle of the U. S. Geological Survey, and on looking over this to see if any habitats likely to yield *Chelone* occurred in the vicinity, we noted the symbol indicating "fresh marsh" north of Burke Pond, not far from the site of Clayton's house, so we at once investigated there. After a couple of hours searching in the swampy areas, which fortunately were nearly dry at the end of a hot summer, we came to a colony of a purple *Chelone* barely a kilometer west of the old Clayton place. From there southward along the valley of North End Branch for 2½ kilometers to the tidal marsh at "Fort Nonsense," the

same species was found to occur, in scattered patches, in both Mathews and Gloucester counties. When collecting specimens in the neighborhood of his home, Clayton could not have failed to become acquainted with this striking plant, and it would seem far more likely to represent his "Chelone floribus speciosis pulcherrimis colore Rosae damascenae," as he termed it in writing to Gronovius,[4] than anything from a more remote region.

The characters of this *Chelone* were unmistakably those of the one which had first attracted my attention to the genus the year before at Hill's Bridge, 150 kilometers to the north. The leaves tapered to short petioles, and were but little reduced in size toward the inflorescence, the flowers were relatively large and uniformly purple-colored both without and within, and the sterile stamen was white. *C. grimesii* on the other hand had proved to possess leaves which narrowed abruptly to sessile bases and became much reduced in size toward the inflorescence, also somewhat smaller flowers which were purple-striped within, and a purple sterile stamen. Comparison with the Miller plate above referred to indicated that it represented, though somewhat crudely, the first rather than the second of these species; it showed leaves which tapered at the base (although the petioles were drawn abnormally broad) and which were not much reduced below the inflorescence, as well as large flowers, uniformly colored within. The inference is clear that Clayton did not have *C. grimesii*, as had been suspected by Mr. Weatherby when he named the species, and had been further mentioned by Mrs. E. W. Erlanson[5] in reviewing the work of her late husband, Professor Grimes. He had, instead, the other species here under discussion, which must therefore represent the real *Chelone obliqua*. So we had "the thrill that comes once in a lifetime"—we had rediscovered a plant lost to science for 175 years!

The settling of the question as to the identity of the original *Chelone obliqua* increased rather than diminished my interest in the genus, for the relationship of these lowland species with

[4] Gronovius, Flora Virginica ed. II. 93. 1762.

[5] Papers Michigan Acad. Sci. 4: 117. 1924.

the Chelones of the Allegheny mountains was still uncertain. A trip was planned, accordingly, for the fall of 1926, to visit the mountains and study the representatives which might occur there. It was not practicable to start on this trip until the second week in September, and Dr. Pennell was unable to go, but I was fortunate in being accompanied by Mr. W. W. Diehl, of the Bureau of Plant Industry, a specialist in fungi, but acquainted with the higher plants as well. An ancient Chevrolet automobile, dubbed by one of the officers of the Philadelphia Botanical Club "Chevy of Chevy Chase," furnished transportation, and we carried cots and slept out, although no cooking was attempted because of the loss of valuable collecting time it would have involved. Two weeks were available for the trip, and in spite of some delays for repairs, it was completed according to schedule.

At least five different species of *Chelone* had been reported in the southern Alleghenies. The best known of these is a purple-flowered plant with long-petioled ovate leaves, named by Pursh *C. lyoni*, which is well represented in herbaria. In addition to this Muhlenberg had recorded a *C. latifolia* which Elliott considered distinct and first characterized, although later writers have combined the two. Many years later Small described a sessile-leaved species from Highlands, North Carolina, giving its flower-color as white and naming it *C. cuthbertii*. Moreover, Millspaugh[6] included *C. obliqua* as occurring at two localities in West Virginia, and *C. glabra* was generally believed to extend from the lower country into the mountains. Finally, it should be noted that Rafinesque had reported in various publications a number of species and varieties, which, as usually happened with his propositions, had been ignored by later botanists. The trip was planned to find out as much as possible as to the relations between these various plants.

The start was made on September 12th, and the mountains were entered west of Staunton, Virginia. The first species collected, at several points in Virginia and West Virginia, proved to agree in characters with *C. glabra* var. *elatior*

[6] Liv. Fl. W. Va. 351. 1913.

Rafinesque, a large plant with corollas distally purple, in this seemingly intermediate between *C. glabra* and *C. obliqua.* On the third day we reached Cheat Bridge, Randolph County, West Virginia, where Millspaugh had reported *C. obliqua.* Rev. Fred W. Gray, of Cass, W. Va., was our guide in this vicinity, and with his aid we soon found, in thickets on mediacid soil, an abundance of a *Chelone* similar to the one just mentioned but with narrower leaves. It was clearly not *C. obliqua,* the corollas being purple only toward the tip, but corresponded more or less to Rafinesque's "*Chlonanthes montana.*" Two long disregarded plants known to this early worker were thus apparently rediscovered, although they may not prove to be specifically distinct one from another.

We then proceeded southward, and, after a day of bouncing over roads mostly "laid out by the French engineer, De Tour," we entered North Carolina at Elk Park, the beauty of the twilight trip up the mountains through the Doe River Gorge making up for all the discomforts of the day. Spending the night near Spruce Pine, we started southwestward early the next morning, and just after passing through Ivy Gap, when entering Madison County, we came upon a large colony of *Chelone.* Here in subacid soil along a mountain brook grew two sorts, one with bright purple, the other with green-tipped white flowers. Although the leaves of the first were very large, and tapered toward the base, indicating it to correspond to Elliott's *C. latifolia,* this would seem to be only a variant of *C. lyoni.* The second had leaves resembling those of *C. obliqua,* but differed in having relatively small corollas strongly keeled above and totally lacking in purple color, being apparently unlike anything included in herbaria or mentioned in the literature.[7] To the thrill of rediscovering a third long-lost plant we had added that of finding an entirely new one!

The next point to be visited was Highlands, Macon County, which was reached on Sunday, September 19th, a week after the start of the trip. Here we had the good fortune to meet Mr. Thomas G. Harbison, who took us to the original locality

[7] Described below on p. 20, as *C. chlorantha* Pennell & Wherry.

of *Chelone cuthbertii.* As had been suspected by Dr. Pennell from examination of the type specimen, which preserved traces of purplish pigment in the infolded portions of the corolla, the flower proved to be not white, as stated in the original description (based solely on dried material), but strongly violet-purple. It grows, along with "*Chlonanthes montana,*" already observed in West Virginia, in thickets on moist mediacid peaty soil, toward the southeastern corner of the town, and was nearly past blooming at the time of our visit. It has proved to be identical in all essential respects with "*C. grimesii*" of the Coastal Plain, and was found in 1927 to be linked in range by occurrences on the Piedmont, so the latter name will, unfortunately, have to be discarded. Another colony was discovered the next morning in a boggy thicket on the south side of Big Creek, east of the road running north to Buck Gap, about 1 kilometer northwest of Shortoff Post Office, north of Highlands.

The following day, after delightful visits to Whiteside Mountain, Wildcat Cliffs, and the colony of giant Hemlock trees at Priestley, the property of Mr. H. H. Richardson, where we were kindly guided by Mr. Harbison, we reluctantly turned Chevy's headlights toward the east for the homeward journey. In the neighborhood of Brevard Miss Katherine A. Erwin had received reports of the presence of purple Chelones, and we were eager to see what species they might represent. The first of these was found to grow in a wet subacid thicket along a run below Mrs. Poole's spring, 2½ kilometers southeast of Brevard Court House. The plants were enormous, reaching a height of 2½ meters, and were loaded down with beautiful large flowers of varying pink to purple hues. The leaves were like those of the *C. obliqua* of the Coastal Plain, but the greenish sterile stamens and usually cream-colored hairs on the lower lip suggested *C. glabra*, so it seems in much intermediate, but may be classed as a distinct variety of the former, to be named after our charming guide.[8]

Next we entered the Pisgah National Forest by the gateway at Ecusta, a few kilometers farther north, following the

[8] Described below on p. 19, as *C. obliqua erwiniae* Pennell & Wherry.

road up the Davidson River, and in swampy woods on subacid soil along small tributaries of that stream we came upon several additional colonies of the relative of *C. obliqua* just described. That it has not been previously recognized is due either to its being such a late bloomer that summer visitors have missed it, or to the circumstance that in the days before the advent of the automobile, when most of the collecting in this region was done, botanists were forced to carry their specimens on their backs. Desiring to reduce their loads as much as possible, they ignored the plants of lower levels, as probably identical with those of regions already familiar to them, and pushed up to the summits to make their collections. As a result every herbarium is well provided with specimens of *C. lyoni,* which grows extensively at the higher elevations, but the other got left out of the presses. We found that *C. lyoni* differs from other Chelones in growing in rather dry rocky woods, its soil being usually subacid. Though of low stature, it is the loveliest of all the species, its bright rose-purple flowers being set off most attractively by the large broad leaves.

On the way eastward we saw more of *Chelone lyoni* beyond Asheville, and near the village of Uree found a small colony of the new variety of *C. obliqua* already mentioned, showing that it grows on the Piedmont as well as the Blue Ridge. From then on nothing of interest in the way of native plants came to light until we reached Wilmington, near the south-eastern corner of North Carolina. Purple-flowered Chelones had been reported there, and after some hours search in all sorts of places where members of this genus seemed likely to grow, we finally found a small colony in a slightly acid cypress swamp at the south end of Third Street, and another about 5 km. north of Wilmington, in a gum-ash swamp north of Smith Creek. Both were still in bud, but they evidently represent the original variety of *C. obliqua.* The swamp south of Wilmington also yielded another notable plant, the Spider Orchid, *Habenaria repens* Nuttall. This is common in the South, but there has been much uncertainty as to its northern limits. Grimes had reported it from Williamsburg, Virginia, although his specimen, preserved in the New York

Botanical Garden herbarium, proved when examined by Dr. J. K. Small and me to be only withered *H. lacera*, so that this Wilmington station is the most northeastern point that it is definitely known to reach.

The last day of the trip had now arrived, and it was scarcely to be expected there would be opportunity to locate anything more. But a swamp on subacid soil about midway between Petersburg and Richmond, Virginia, looked promising, and a brief search disclosed the presence there of a colony of *Chelone cuthbertii*, hitherto known from very few localities. North of Richmond a little *C. glabra* was seen, and the trip of 1926 came to a close. Every species of *Chelone* reported from the southeastern United States had been collected, one new species and one or more new varieties had been discovered, and the identity of several doubtful species had been established.

There still remained, however, a number of points to be cleared with reference to the inter-relations of these plants, and Dr. Pennell wished to see the new finds in the field, so a more extensive trip was undertaken in the Fall of 1927. A somewhat more modern vehicle was available this time, and by taking up the rear seat and back-rest, running them lengthwise, and using the front seats as foot-rests, we were able to sleep inside throughout the trip. The start was made on August 23rd, and we remained out for nearly five weeks, making however only a short run each day, as we wished to collect plants extensively. Perfect weather marked the trip; on 23 nights passed in the car our heaviest rain was a sprinkle of ten minutes' duration while at the base of Stony Man Mountain. In such weather plants dried so rapidly that our utmost hopes were exceeded; over 1,100 collections were made, mainly in remote sections of the Appalachians and Ohio Valley. Although much of the journey lay west of that of the previous year, the greatest success for *Chelone* lay again in the mountains of West Virginia and North Carolina.

In the mountains of West Virginia were gathered again Rafinesque's narrow and broad-leaved species with purple-tipped flowers. From here they were repeatedly collected southward, the broad-leaved "elatior" as the most characteristic Appalachian member of the genus through the Cumber-

lands of Kentucky and Tennessee and the Blue Ridge of North Carolina and northernmost Georgia, the narrow-leaved "montana" seemingly as a high-mountain derivative of this.

In northwestern Ohio and northeastern Indiana we saw the peculiar linear-leaved plant described years ago by a Michigan botanist as *Chelone glabra linifolia* Coleman. Its corollas were found to be pale, normally without trace of purple, being tipped with yellowish-green.

In southern Indiana, however, in a very different natural region, occur plants[9] with leaves as narrow but instead with the dull purple tinge within the corolla-lips that marks true *Chelone glabra* of the Atlantic seaboard and Piedmont. In southwestern Indiana, growing in a black muck-swamp with this, we found another goal of our journey, the larger-flowered western variety[10] of *C. obliqua.*

Also in the forests of this corner of Indiana, from a clue afforded by State Forester Charles C. Deam and with his careful directions and local introduction, we were able to locate a colony of the rare orchid *Spiranthes ovalis* Lindley, which was later here photographed by Mr. Edward A. Eames for inclusion in a forthcoming book on our native orchids.

In Kentucky we collected heavily, this being one of the states whose flora has been seriously neglected by botanists. We were here in the country best-known to Rafinesque, and from which he described a host of plants which were ignored or misunderstood by his contemporaries and successors. At Cumberland Falls we were at one of his favorite resorts, while the ascent from it to the Cumberland Plateau that stretches across eastern Tennessee into southeastern Kentucky took us from his territory into one with special geographical problems of its own.

Once on this sandy table-land we saw plant after plant familiar to us in the Gulf Coastal Plain far to the south and at a lower elevation. Doubtless our collections, when fully studied, will be found to have added a number of these as new to the areas of the northern manuals, Gray's and Brit-

[9] Described below on p. 22, as *C. glabra elongata* Pennell & Wherry.

[10] Described below on p. 19, as *C. obliqua speciosa* Pennell & Wherry.

FIG. 1. *Chelone obliqua speciosa*, growing near Grandview, Indiana.

FIG. 2. *Chelone chlorantha*, photographed in garden from plant transplanted from Ivy Gap, North Carolina.

ton's, works that go south only to the Kentucky-Tennessee line. The large white-fringed orchid of the Gulf pine-land bogs, *Habenaria conspicua* Nash, gathered in an acid-soil swamp south of Pine Knot, is such a plant.

But in the North Carolina mountains interest concentrated again on *Chelone*. The largest number of these in any one restricted area was found around Brevard, where we were again guided by Miss Erwin. There grew: *C. cuthbertii*, a notable extension of range; *C. lyoni* and its form, *latifolia; C. montana elatior*; and the plant discovered last year, *C. obliqua erwiniae*. The interesting bogs south of East Flat Rock station, although reached after nightfall, yielded to "flashlight hunting," the highland *C. montana*. Farther north, not only on the Blue Ridge at Ivy Rock and as the commonest of the genus along the streams in the forests of the Black Mountains, but also at their eastern base in the Piedmont, grew *C. chlorantha*. Its sharply toothed, glossy leaves and greenish-tipped corollas were constant characters that distinguished it sharply in the field from the widespread *C. montana elatior*.

Near Danbury, in the Piedmont toward the northern boundary of North Carolina, Dr. P. O. Schallert, of Winston-Salem, showed us many interesting things in Schweinitz's old collecting grounds, including *Chelone cuthbertii*, this station bridging the gap between its heretofore known Blue Ridge and Coastal Plain occurrences.

The specimens collected on all these trips are at the Academy of Natural Sciences of Philadelphia, where the genus *Chelone* now has far more complete representation than in any other herbarium.

The Genus Chelone of Eastern North America

F. W. PENNELL AND E. T. WHERRY

Among the plants brought to France from the French colony of Acadia, the present Nova Scotia, by M. Dierville, about 1700, was a white-flowered herb, that seems to have been dubbed "La Tortue" (the turtle) by the settlers. At least the botanist Tournefort, publishing in 1706 in the "Memoires de Mathematique et Physique" (p. 85) of the "Academie Royale des Sciences" of Paris, commences his account of the plant with this name and gives to the new genus the Greek word that zoologists still hold for the turtle, *Chelone*.[1] Tournefort's description is very brief, but is accompanied by illustrations of the flower and fruit that show unmistakably our "turtlehead." He called the species: "Chelone Acadiensis, flore albo."

In 1727 the Dutch botanist Boerhaave speaks of the plant as grown in the Botanical Garden at Leyden, Holland; while at the Clifford Garden, at Hartecamp, Holland, it was received in time to be added in an appendix to Linnaeus' sumptuous "Hortus Cliffortianus" in 1737. There it is credited as wild "in Virginia, Acadia, &c.," so one suspects that Linnaeus' own acquaintance with the plant may have been based as much upon material from the Middle Atlantic states as upon the earlier northern collections. The white-flowered species was among the plants collected by John Clayton in Virginia, and reported in Gronovius' "Flora Virginica" of 1743, the earliest considerable flora of any part of the present United States. As the binomial naming of plants was introduced by Linnaeus, and our present specific names trace only to his

[1] Rafinesque seems to be the only botanist who has protested against using such a zoological name for a plant. In his "Principes fondamentaux de somiologie" of 1814 (p. 26), he renamed the genus *Chlonanthus*. This was altered to *Chlonanthes* in his "New Flora of North America" in 1837 (2:20), with the characteristic comment: "I have modified into *Chlonanthes*, the absurd name of *Chelone* that meant *turtle!* as if a flower was a reptile!"

"Species Plantarum" of 1753, it is ever important to ascertain the sources of his information. Fortunately in this instance the white-flowered species of Virginia and Acadia are the same plant, so no uncertainty pertains to the use of the name *Chelone glabra.*

Linnaeus' selection of the specific name "glabra" was due to his desire to contrast this plant with another that had been found in Virginia, called by him *Chelone hirsuta.* The latter was also among Clayton's collections but had been gathered by other worthies, while a third species, closely akin to it, had been actually described as a new genus by its discoverer, John Mitchell.[2] Linnaeus did not adopt this suggestion but treated Mitchell's *Penstemon* as *Chelone pentstemon.* The view that our spring-flowering "beard-tongues" were really distinct generically from the autumn-flowering "turtle-heads" gained ground very slowly, and as late as 1825 one species was published on the same day as *Chelone digitalis* (Nutt.) Sweet[3] and *Penstemon digitalis* Nutt.[4] Even after a reasonable separation of the species pertaining to the two genera had been made, it has remained to the present very difficult to formulate characterizations that are universally valid. The eastern Chelones proved a natural enough group, but as expeditions to the western United States brought back more and more diverse Penstemons up to the hundreds of to-day, each assumed contrast was invalidated. Nuttall, in his "Genera of North American Plants" of 1818, thought that *Chelone* might be told by its "sterile filament shorter than the rest; anthers lanuginous" and "seeds membranously margined," while *Penstemon* possessed "the fifth sterile filament longer than the rest and bearded on the upper side. Anthers smooth" and "seeds angular." By 1878 when Asa Gray, the greatest American taxonomist and himself the describer of very many species of *Penstemon,* attempted to distinguish the genera for his "Synoptical Flora of North America" (p. 246), we find him saying of *Chelone*: "Seeds surrounded by a broad membranous wing. Otherwise nearly

[2] Acta Acad. Nat. Cur. 8. App. 214. 1748.
[3] British Flower Garden. pl. 120. Aug. 1, 1825.
[4] Sims in Bot. Mag. 52: pl. 2587. Aug. [1]. 1825.

as in *Pentstemon.*" Even this characterization leads to the inclusion in *Chelone* of one species of the Cascade Mountains of the northwestern United States. *Chelone nemorosa* Dougl. is habitally different from the Appalachian "turtle-heads," but quite similar to certain "beard-tongues" of its region, especially *Penstemon lyallii* Gray, so similar indeed that one can not question a close relationship. Obviously the presence of winged seeds has not finally solved the problem.

Dr. Gray made a new section for *Chelone nemorosa*, *Nothochelone*, and in his contrast of this with *Euchelone* calls attention to the different type of inflorescence in the two. *Nothochelone* has a loose open thyrsus in which the flowers are pedicelled; *Euchelone* has a close spike, with flowers subtended by bractlets. In this contrast lies hope of generic definition. *Penstemon*, except in rare instances of obvious reduction (*e.g.*, *P. harbourii* Gray), bears compound inflorescences, each branch producing its flowers cymosely, terminating normally in two pedicels, axillary to which develop the secondary pedicels or peduncles; moreover the individual pediceled flowers wholly lack subtending bracts. *Chelone* always develops a simple racemose inflorescence, the nearly sessile flowers being each accompanied by two bractlets. A pair of bractlets on the pedicel, usually just beneath the calyx, is a wide-spread character through the Scrophulariaceae, one which recurs in many tribes and which has already been judged to be primitive.[5] *Chelone's* predominance in the old Appalachian region would lead us to suspect it an ancient genus; the retention of this structural feature affords strong morphological support for the claim.

In passing it may be said that the chief distinctions once adduced between *Chelone* and *Penstemon* are broken down mainly in one section of the latter genus, that including a few bushy species of the northwestern United States in which the anthers are as densely woolly as in the Appalachian *Chelone*. These plants were long ago erected into a genus by Rafinesque, and one suspects that the restoration of his *Dasanthera* will divide this group into three genera more natural and readily definable than the present two can ever be. The combination

[5] Proc. Acad. Nat. Sci. Phila. 80:369. Nov., 1928.

D. fruticosa (Pursh) Raf., based upon *Gerardia fruticosa* Pursh, was made in the "American Monthly Magazine" for February, 1818 (p. 267). To *Dasanthera* would pass *P. lyallii* and *P. nemorosus* (Dougl.) Trautv. with several other species.

No genus could be more coherent in habit, leaves, flowers and fruit than *Chelone* as now restricted. It has been a difficult task, even after the extensive field-work recounted in the preceding paper, to arrive at definite understanding of taxonomic limits. Some variation of leaf-form, leaf-serration and petiolation marks species and varieties, but, beyond the assurance that extreme conditions such as the linear leaf-blades of *linifolia* are derived, these give little clue as to probable course of evolution from state to state. No distinctions are perceptible in bracts, bractlets, sepals, corolla-form or amount of corolla-pubescence, in stamens, capsules or seeds; only in the color of the corolla and of its beard and the color of the sterile filament are there specific differences. Color is proverbially uncertain, but in *Chelone* it seems to have followed a definite course of evolution. Purple corolla with yellow beard and purple sterile filament makes the most colorful combination, in *C. cuthbertii*; such a corolla and with yet more golden beard, but with white sterile filament marks *C. lyoni*, while *C. obliqua* shows the beard much paler; next *C. montana* has the corolla only distally purple, with cream-white beard and green sterile filament; *C. glabra* has white corolla that retains a dull-purple within its lobes; and finally in *C. chlorantha* and *linifolia* the last vestige of purple is replaced by pale greenish-yellow. That evolution has proceeded toward these paler states rather than the reverse seems evident from the fact that the inside of the arched upper lip of the corolla, wholly hidden from view and therefore not within the play of natural selection, in *C. glabra* is strongly purple; clearly the color here must have been retained from an ancestral purple corolla, although the exterior showy surface of the lip has become nearly or wholly white. It is chiefly according to this color-scheme that the species have been grouped.

The specimens preserved in most American herbaria have been reviewed for this study, and to the curators of these we

are much indebted. The article just preceding this tells of our field-study. It is planned to present the geographical data more in detail, with maps of distribution of the species based upon ample citation of specimens, in a forthcoming account of the "Scrophulariaceae of the Eastern United States and Canada;" now will be given only keys, necessary synonymy and a short statement of range.

KEY TO SPECIES AND VARIETIES

Leaf-blades sessile or nearly so, rounded at base; corolla purple, with wide lines within on the anterior side; sterile filament purple; flowers conspicuously four-ranked, in dense terminal, nearly leafless spikes.
1. *C. cuthbertii*

Leaf-blades petioled, or if obscurely so then narrowed to base; sterile filament white or green; flowers less conspicuously 4-ranked, the spikes usually less exserted beyond the leaves.

Corolla purple throughout; sterile filament white or nearly so; sepals ciliolate; bracts often rounded; leaf-blades always on well-defined petioles.

Leaf-blades widest below the middle, mostly ovate, rather finely and uniformly serrate, proximally truncate or abruptly narrowed to petioles 1.5–3 cm. long; spike short, much overtopped by the wide upper leaves; corolla sharply ridged above, with many fine purple lines within on the anterior side, the beard of the anterior lip bright yellow.....2. *C. lyoni*

Leaf-blades widest about the middle, narrower, usually coarsely serrate, cuneately narrowed to petioles 0.5–3 cm. long; spike longer, less conspicuously overtopped; corolla scarcely ridged above, faintly or not lined within, the beard of the anterior lip pale yellow.

Bracts, except the lowermost, usually obtuse to acutish; sepals rather strongly ciliolate; corolla 30–37 mm. long, bright purple; petioles often longer and leaf-blades more coarsely serrate.....3a. *C. obliqua speciosa*

Bracts mostly acute to acuminate; sepals less ciliolate; corolla 25–32 mm. long; petioles short, 0.5–1.5 cm. long.

Corolla bright "mallow purple," its beard pale yellow; sterile filament always white; leaf-blades slightly paler beneath, mostly serrate.....3. *C. obliqua*

Corolla duller purple, its beard nearly white; sterile filament white or pale green; leaf-blades much paler beneath, mostly dentate-serrate.
3b. *C. obliqua erwiniae*

Corolla white throughout or distally purple: sterile filament green or greenish; sepals obscurely ciliolate; bracts never rounded; leaf-blades narrowed to short and often obscurely defined petioles.

Corolla distally purple; petioles well-defined, 0.5–2 cm. long; leaf-blades lanceolate to elliptic-oval, the largest 2–6 cm. wide.

Leaf-blades ample, elliptic or elliptic-oval, mostly 12–16 cm. long by 4–6 cm. wide, uniformly serrate-dentate with wide-spreading teeth; corolla large, usually 30–36 mm. long ..... 4a. *C. montana elatior*

Leaf-blades smaller, lanceolate, mostly 8–15 cm. long by 2–3 cm. wide, sharply serrate with narrow or ascending teeth; corolla 25–30 mm. long ..... 4. *C. montana*

Corolla distally white or greenish, externally only faintly if at all purplish; petioles often shorter.

Leaf-blades sharply dentate-serrate with spreading teeth, elliptic-lanceolate to elliptic-ovate, usually widest about the middle, 3–6 cm. wide, only slightly paler beneath, on well-defined petioles 0.6–1.2 cm. long; corolla strongly keeled posteriorly, distally dull greenish-yellow, without tinge of purple ..... 5. *C. chlorantha*

Leaf-blades with more ascending teeth, linear to elliptic, usually widest near base, 1–4 cm. wide, decidedly paler beneath, on shorter and often ill-defined petioles; corolla rounded or only slightly keeled on back.

Corolla purplish within distally (or color sometimes lacking in *C. g. ochroleuca*); leaf-blades narrowly lanceolate or elliptic, mostly 2–4 cm. wide.

Corolla distally somewhat yellowish, usually only slightly purplish within lips; spikes elongating, the flowers tending to become isolated.
6a. *C. glabra ochroleuca*

Corolla distally white or faintly purplish, decidedly purplish within lips; spikes usually dense.

Uppermost leaf-blades little or no smaller than those of the middle part of the stem, proximally rounded to the petioles.
6b. *C. glabra dilatata*

Uppermost leaf-blades decidedly smaller than those of the middle portion of the stem, like them clearly narrowed to the petioles.

Leaf-blades lanceolate or elliptic, relatively firm; spikes usually short.
6. *C. glabra*

Leaf-blades linear-lanceolate, relatively thin; spikes tending to elongate.
6c. *C. glabra elongata*

Corolla white within, distally greenish-yellow; leaf-blades linear to narrowly lanceolate, mostly 1–2 cm. wide ..... 6d. *C. glabra linifolia*

1. **Chelone cuthbertii** Small. (PLATE 1, FIG. 1)

Chelone cuthbertii Small, Fl. S. E. Un. St. 1058, 1337. 1903. "Type, Highlands, N. C., Cuthbert, no. 283, in N. Y. B. G." Type verified, and plant re-collected at original station by Wherry & Pennell (no. 14140). Corolla erroneously stated to be white.

Chelone grimesii Weatherby in Rhodora 25:21. 1923. "Wooded swamp near Elko, Henrico Co., Virginia, Aug. 8, 1921, Grimes no.

4189.'' Type verified, and plant re-collected at original station by Wherry & Pennell (no. 12484).

Shaded or open sandy swamps and bogs, Blue Ridge and Piedmont of North Carolina to the Coastal Plain of Virginia. Flowers and fruits earlier than the other species, chief bloom being in August. Corolla violet-purple or mauve.

2. **Chelone lyoni** Pursh. (PLATE 1, FIG. 2)

Chelone lyoni Pursh, Fl. Amer. Sept. 737. 1814. ''In Upper Carolina and Georgia. Lyon.'' Type not verified, but description distinctive.

Chelone major Sims in Bot. Mag. 44: pl. 1864. 1816. ''Introduced by the late Mr. Lyons, from Carolina.'' Clearly from the same source as the preceding.

Chelone latifolia Ell., Sketch Bot. S. C. & Ga. 2: 127. 1822. ''Discovered . . . by Mr. Lyon along the bases of the mountains of Carolina, but principally in Burke county, N. C.'' Name adopted from Muhl., Cat. Pl. Amer. Sept. 58. 1913, where it is unaccompanied by a description and so not published; Muhlenberg's Herbarium at the Academy of Natural Sciences shows that he had the usual state of *C. lyoni*. As first described by Elliott, however, the name pertains to a plant with leaf-blades tapering to the petioles (instead of truncate). Such plants were collected at various localities by Wherry & Pennell, but nearly always associated with typical *C. lyoni* and seeming to represent a wet-soil form of that plant which may be known as forma *latifolia* (Ell.) Pennell & Wherry, comb. nov.

Rich wooded slopes and cliffs, Blue Ridge mountains of western North Carolina, and adjacent South Carolina and Tennessee. Also flowers early, but lasts through September.

Records of this from Virginia and Georgia have been doubtless due to confusion with *C. montana elatior*.

3. **Chelone obliqua** Linné.

Chelone obliqua L., Syst. Veg. ed. XII. 408. 1767. Based primarily upon a plant described in Miller's ''Gardeners' Dictionary,'' the type of which at the British Museum has been verified by Mr. Ronald Do-Good as identical with specimens collected by Wherry at Hill's Bridge, Maryland. Miller's plant came from an introduction by Clayton, who doubtless obtained the species near his home in woodland along North-end Branch, about eight miles east of Gloucester, Virginia; here the plant was re-collected by Wherry & Pennell (no. 12648).

Chelone purpurea Mill., Gard. Dict. ed. VIII. n. 2. 1768. Evidently based upon the Miller specimen just discussed. A more appropriate name.

Chelone glabra purpurea (Mill.) Pursh, Fl. Amer. Sept. 427. 1814. Technically based upon Miller's species, but the name was applied by Pursh to *C. montana elatior* of the Virginia mountains.

Wet woods and cypress swamps, often about the head of tidewater, through the Coastal Plain from Maryland to Florida and Mississippi, and northward in the Mississippi Embayment through western Tennessee, doubtless connecting with var. *speciosa*. This and all the following species flower chiefly in September.

3a. **Chelone obliqua speciosa** Pennell & Wherry, var. nov.
(Plate 2, Fig. 1)

Leaf-blades usually more sharply and coarsely serrate, on petioles that are 0.5–3 cm. long. Bracts rounded to acutish, rarely acute. Bracts, bractlets and sepals light-green, usually more strongly ciliolate than in the species. Corolla 30–37 mm. long, amparo-purple or mauve to mallow purple or magenta.

Type, black muddy swamp, northeast of Grandview, Spencer Co., Indiana, collected in flower Sept. 4, 1927, E. T. Wherry and F. W. Pennell 11577; in Herb. Acad. Nat. Sci. Phila.

Wet woods and swamps, about the head of the Mississippi Embayment, southern Indiana and Illinois to southeastern Iowa and northeastern Arkansas.

3b. **Chelone obliqua erwiniae** Pennell & Wherry, var. nov.

Leaf-blades rather firm, serrate, decidedly paler and slightly glaucous beneath, at base cuneately narrowed and somewhat decurrent on the petiole which is 0.5–1 cm. long. Bracts, bractlets and sepals finely ciliolate. Corolla magenta to pale rose-purple, the anterior lip lanose with white or faintly yellowish hairs. Sterile filament white or pale green distally, glabrous or slightly hairy.

Type, moist gneissic cliff, along Davidson River, in Pisgah National Forest, above Ecusta, Transylvania Co., North Carolina, collected in flower Sept. 17, 1927, by Miss K. A. Erwin, E. T. Wherry & F. W. Pennell 14184; in Herb. Acad. Nat. Sci. Phila.

Wet woods and swamps, mountains of North Carolina and adjacent Piedmont Plateau.

We are not sure that this mountain plant is correctly placed as a variety of the lowland *C. obliqua*. Its characters suggest that species most nearly, but they are evidently transitional toward *C. montana*.

4. **Chelone montana** (Rafinesque) Pennell & Wherry, comb. nov.
(PLATE 3, FIG. 1)

Chelone glabra capitata Raf.,[6] Med. Fl. 2: 118. 1830. "Peculiar to the Western States." Description nearly repeated in the diagnosis of the following, which was presumably based upon the same material.

Chlonanthes montana Raf., Autik. Bot. 19. 1840. "Mts. Wasioto or Cumberland." Type not known to exist, but description applies to this plant of the Alleghanies, especially in the mention of narrow, long-acuminate leaves.

Sphagnous bogs and swamps, at higher levels in the Appalachians from North Carolina and Kentucky to Pennsylvania, apparently as a mountain derivative of *elatior*. Very similar or identical plants occur sporadically northeastward through New England, eventually to Miquelon Id., off Newfoundland; such a specimen, or a form intermediate to *C. glabra*, was described from New Hampshire as *C. glabra f. rosea* Fernald.[7]

4a. **Chelone montana elatior** (Rafinesque) Pennell & Wherry, comb. nov.
(PLATE 3, FIG. 2)

Chelone glabra elatior Raf.,[6] Med. Fl. 2: 118. 1830. No locality stated nor type known to exist, but the description of so tall a plant, with wide petiolate leaves and purplish white flowers would indicate this herb so frequent in the part of the Appalachians especially known to Rafinesque.

Stream-banks and swamps, mountain-forests from northern Georgia to eastern Kentucky and southern Pennsylvania; the most common and typical Appalachian "turtlehead."

5. **Chelone chlorantha** Pennell & Wherry, sp. nov. (PLATE 2, FIG. 2)

Stem 9–15 dm. tall. Leaf-blades mostly 9–18 cm. long by 3–6 cm. wide, elliptic-lanceolate to -ovate, sharply dentate-serrate with spreading teeth, green above, slightly paler and glaucous beneath, long-acuminate, at base cuneately narrowed to the stout petioles which are 0.6–1.2 cm. long. Spikes often elongate, terminal and in the axils of the uppermost leaves. Bracts 6–10 mm. long, ovate, acute to acuminate. Bractlets 4–6 mm. long, oval or oblong, rounded or obtuse. Sepals 6–9 mm. long, oblong, rounded or obtuse. Bracts, bractlets and sepals light green, glabrous, minutely ciliolate, the sepals with narrow scarious margin. Corolla 23–28 mm.

[6] Although these names were originally written as binomials and so have been cited by the "Index Kewensis" as species, Rafinesque distinctly stated that they were proposed as varieties of *Chelone glabra* L.
[7] Rhodora 18: 72. 1916.

FIG. 1. *Chelone montana*, growing at Highlands, North Carolina.

FIG. 2. *Chelone montana elatior*, growing on Stony Man Mountain, Virginia.

long, proximally white, distally "dull green-yellow" both externally and internally, strongly keeled posteriorly, the anterior lip with pale-yellow beard and the margin becoming much deflexed. Sterile filament green, acute, distally hairy. Capsule about 12 mm. long.

Type, stream-bank, Celo, Yancey Co., North Carolina, collected in flower Sept. 20, 1927, by E. T. Wherry & F. W. Pennell 14275; in Herb. Acad. Nat. Sci. Phila.

Stream-banks and swamps, Black Mountains of North Carolina and adjacent Piedmont Plateau.

6. **Chelone glabra** Linné. (PLATE 4, FIG. 1)

Chelone glabra L., Spec. Plant. 611. 1753. "Habitat in Virginia, Canada." Description adopted from L., Hort. Cliff. 493. 1737, and, as stated in the opening discussion, the source of Clifford's plant is not known. It is surely this species, however.

Chelone alba Moench, Meth. Hort. Bot. Marburg. 442. 1794. Probably a restoration of Tournefort's more appropriate name for this species.

Chelone glabra alba Pursh, Fl. Amer. Sept. 427. 1814. "On the banks of rivers, ponds, and swamps: New England to Carolina." Name assigned to the white-flowered plant in contradistinction to var. *purpurea* (Mill.) Pursh.

Chelone glabra lanceolata Nutt., Gen. N. Amer. Pl. 2: 51. 1818. No locality cited, but specimen so labeled in Herb. Acad. Nat. Sci. Phila. may be assumed to be the type. It is from "N. Jersey" and is the pubescent-leaved state treated below as forma *tomentosa* (Raf.) Pennell.

Chelone glabra maculata Raf.,[6] Med. Fl. 2: 117. 1830. No locality stated nor type known to exist. Described as with corolla "white, with green mouth spotted of red;" seemingly an unusual color variant but possibly var. *ochroleuca*, below.

Chlonanthes tomentosa Raf., New Fl. Amer. 2: 20. 1837. "In the mts. of Virginia." Type not known to exist, but description of leaves tomentose beneath indicates a state frequent through the species, that has been treated as forma *tomentosa* (Raf.) Pennell, in Torreya 19: 117. 1919.

Stream-banks and swamps, northern Georgia to eastern Missouri, Minnesota, Ontario and Newfoundland; more common northward and through the Piedmont Plateau. In the southern Coastal Plain passes into var. *ochroleuca*, seemingly transitional toward *C. chlorantha*; in the northeastern part of its area into var. *dilatata*, possibly more ecologically than racially distinct; and in the Ohio valley into var. *elongata*, which perhaps approaches var. *linifolia* of the Great Lake region, the most distinct of all these derivatives and possibly

meriting specific rank. In the Northern States and Canada flowering chiefly in August, in the Middle and Southern States in September.

6a. Chelone glabra ochroleuca Pennell & Wherry, var. nov.

Spikes elongating, relatively laxly flowered, the pairs of flowers usually becoming somewhat isolated. Corolla distally greenish-yellow, within the lobes yellowish or somewhat brown-purple. Leaves often brighter green than the species.

Type, swamp, three miles south of Washington, Beaufort Co., North Carolina, collected in flower Oct. 17, 1927, by Edgar T. Wherry; in Herb. Acad. Nat. Sci. Phila.

Sandy swamps, through the Coastal Plain from North Carolina to Maryland.

6b. Chelone glabra dilatata Fernald & Wiegand.

Chelone glabra dilatata Fern. & Wieg. in Rhodora 14: 226. 1912. "Type, swampy thicket on carboniferous sandstone, Stephensville, Newfoundland, August 15, 1910, Fernald & Wiegand n. 3941 (in Gray Herb.)" Type seen.

Swales and boggy woods, Adirondack Mountains of New York to Quebec and Newfoundland; also apparently collected by A. M. Huger at Waynesville, in the high mountains of North Carolina.

6c. Chelone glabra elongata Pennell & Wherry, var. nov.

Leaf-blades linear-lanceolate or lanceolate, 1.3–2.5 cm. wide, thin, glabrous or pubescent beneath. Spikes tending to elongate, usually 6–8 cm. long. Corolla externally white or nearly so, within posterior lip "deep purplish-vinaceous," within anterior lip "daphne pink," the antero-lateral lobes strongly deflexed on sides so that lip becomes very narrow.

Type, near stream-head in rich forest, 2 miles northeast of Grandview, Spencer Co., Indiana, collected in flower Sept. 4, 1927, by E. T. Wherry & F. W. Pennell 13578; in Herb. Acad. Nat. Sci. Phila.

Wet woods in bottom-land, near the Ohio River, and its tributaries in southern Indiana and Illinois, and in the Mississippi Embayment of western Tennessee.

FIG. 1. *Chelone glabra*, photographed in garden from plant transplanted from the vicinity of Washington, D. C.

FIG. 2. *Chelone glabra linifolia*, growing near Whitehouse, Ohio.

6d. **Chelone glabra linifolia** Coleman. (PLATE 4, FIG. 2)

Chelone glabra linifolia Coleman, Cat. Fl. Pl. S. Mich. 27. 1874. Type, collected by N. Coleman probably near Grand Rapids, Mich., is at Kent Scientific Institute of that City. This not verified. but description is sufficiently distinctive.

Swales and tamarack bogs, through the Great Lake region from northern Ohio, to northern Illinois, northeastern Iowa, Minnesota and northwestern Ontario.

Like the species, var. *linifolia* varies much in the hairiness of the under surface of the leaf, so that the most pubescent state may likewise be distinguished as a form, *f. velutina* Pennell & Wherry, forma nova. It may be typified by Deam 34852, from roadside, 6 mi. northeast of Laporte, Indiana, collected in flower Sept. 15, 1921, in Herb. C. C. Deam at Bluffton, Indiana.

That the narrow leaves of *linifolia* have been derived from wider states is shown by occasional specimens such as Wherry & Pennell 13530 from Steuben Co., Indiana; although the upper leaf-blades of this were linear, not over 1.5 cm. wide, the lower were broadly lanceolate, reaching 4 cm. wide. This evolution must have been quite recent geologically, as *linifolia* like *dilatata* occurs chiefly or wholly in glaciated territory.

A New Colony of Elliottia

HARRY W. TRUDELL

In June, 1923, Dr. Edgar T. Wherry and the writer visited Georgia for the purpose of locating plants of the rare *Elliottia racemosa* Muhlenberg. As recorded in BARTONIA No. 9, 1925–1926, we not only saw the single plant still growing on the Berckmans' Estate near Augusta but also found the two colonies discovered by Dr. Roland M. Harper.[1] At that time several roots were sent to Washington and planted by Dr. Coville in peat-sand soil in the greenhouse of the United States Department of Agriculture but only one of these survived, which growing very slowly has not yet reached the blooming stage.

The trip of 1927 was planned in the hope of obtaining additional roots and also of carrying out cross-pollination in the field. As explained in the previous article, *Elliottia*, like many other members of the Ericaceae, appears to be sterile to its own pollen; and, as all the shoots in any one colony arise from the rootstocks which are all connected, and thus represent but a single plant, seed is not produced. In the distant past colonies of *Elliottia* were doubtless very much more numerous and sufficiently close to each other for insects to carry pollen from one plant to another, but those which have managed to escape destruction are too far apart for this, consequently seed of this species is unknown to science. It was thought, however, that pollen might be carried by automobile from one colony to another, and seed thereby induced to develop which could be collected in the Fall.

Dr. Wherry drove in his automobile from Washington to Asheville, N. C., and on the morning of May 29th the writer joined him there. The route followed was through the Carolinas, across Georgia and southwestward into Alabama to Camden to hunt for Buckley's *Phlox glutinosa*; thence eastward into Georgia and southeastward to the vicinity of Fort

[1] Plant World 5: 87. 1902 and 6: 60. 1903. Torreya 3: 106. 1903.

Barrington on the Altamaha River where Bartram had found *Franklinia,* although the brief search made for this tree was without success. From this point we started northward reaching Petersburg, Virginia, on the thirteenth day. Many interesting plants were seen in the moist Carolinas but in southern Georgia and Alabama we found that a drought of long duration gripped the country and consequently vegetation was much affected.

When in Tuscaloosa, Alabama, we called on Dr. Roland M. Harper, the discoverer of the two colonies of *Elliottia* that we planned to visit, the only ones on record since Dr. Berckmans' find in 1873.

Upon reaching Augusta, we visited the Berckmans' Estate under the guidance of Mr. Skinner, of Fruitlands Nurseries, to see again the specimen of *Elliottia* which has grown there since 1873, but found it apparently in a poorer condition than it was three years ago.

On June 5th, accompanied by our hosts of Fort Valley, Georgia, Mr. and Mrs. John C. Dunegan, we drove to Turnpike Creek, about six miles from McRae to the *Elliottia* colony found by Dr. Harper in 1903. It proved to be in poor condition, with no sign of flowers or buds. As there was considerable lumbering in progress in the vicinity, and the woods had been burned over, the prospects of *Elliottia* here were not very encouraging.

Near Metter, Candler County, while en route to Statesboro on June 7th, we had the exceeding good fortune to discover a very fine colony of *Elliottia* in full bloom, the first new stand found in 24 years. Unlike the occurrence near McRae, this proved to be in open woods of *Pinus australis.* However, as in the other colonies, the soil is a sand much impregnated with humus, and the reaction is mediacid. In an area approximately 30 x 30 feet we counted 45 plants, all apparently connected by rootstocks, as usual. The tallest was 46 inches high, and bore about 40 racemes of flowers and buds and several others were nearly as large. The leaves appeared healthy, and showed no signs of leaf-spot such as had been noted on one of the colonies of the previous trip, but they were much narrower than on any plant previously seen. The

lack of old stems clearly indicated that they had all been burned to the ground not many years ago. Perhaps this unusual vigor of bloom was the result of this burning off occurring at the proper season to stimulate the growth of vigorous new shoots.

The flowers exhaled a faint but pleasing fragrance and were being visited by numerous insects of various kinds. Many advanced buds had been slit by the more eager nectar seekers. In so doing they avoided any contact with the anthers, and thus shirked the carrying of pollen, although enough visits were being made to open flowers to insure cross-pollination had other colonies existed in the vicinity.

About fifty feet away was another colony containing some twenty-five clumps, none of which were over 30 inches high, but there were no flowers and only one small raceme of buds. This group also seemed strong and healthy.

Growing in the immediate vicinity of *Elliottia* were one or more species of *Ibidium, Hicoria, Quercus, Rhus, Ilex, Ceanothus, Hypericum, Cornus, Nyssa, Gaylussacia, Azalea, Leucothoe, Neopieris, Batodendron* and *Gelsemium*. A number of photographs were taken and roots dug and packed in the car for transportation to Washington. In addition several racemes were carried along, carefully wrapped in moist paper, with the hope that cross-pollination with the Statesboro colony might be possible.

After leaving the new find, we proceeded to Statesboro and then westward for about 12 miles to the spot where we had on our previous visit relocated Dr. Harper's colony discovered in 1901. We were disappointed in our hopes of carrying out cross-pollination, for, in spite of the most thorough search, not a single plant could be found in flower, only one of the 75 groups seen bearing a few poorly developed buds. It was interesting to observe, however, that the leaf-spot which had been so conspicuous on our previous visit was now quite absent, probably owing to the severe drought. After much effort in separating the roots of *Elliottia* from those of associated plants, a few were successfully dug and packed along with those from other colonies. All were transported to

Washington where they have been planted in peat-sand soil under Dr. Coville's direction. It is gratifying to learn that practically every root brought back this time came through in good shape and healthy new shoots are now (3 months later) coming up from most of them. There is thus good reason to hope that the cross-pollination, impossible in the field, can soon be effected in the greenhouse and seeds ultimately obtained.

Potamogeton vaseyi in Southeastern Pennsylvania

J. W. ADAMS

During the spring of 1925, the writer came upon two small adjoining ponds in the alluvial valley of the Wingohocking Creek, just east of Greenmount Cemetery, Feltonville, Philadelphia County. These two spring-fed ponds were merely natural shallow depressions at the base of a slope and were so situated that the water of the smaller pond emptied into the larger one by means of a narrow rivulet about four meters long. The smaller pond was almost completely filled with algae, *Elodea*, and a small submerged species of *Potamogeton*, while the larger and muddier pond was almost devoid of any vegetation, even around the margin.

The small *Potamogeton* was of great interest because of the rarity of any species of this genus in that section of the County and also because of its great abundance in the smaller pond. This species came up in the late spring and grew with such rapidity that before the middle of the summer it took possession of almost the entire pond.

On June 14th I collected several flowering specimens with the intention of returning soon and getting material in fruit. Unfortunately, the visit to the locality was delayed until the following year. When the spot was revisited, it was discovered that the City had diverted the course of the Wingohocking Creek through the larger pond, and had completely drained the smaller one! The creek, which for a number of years had been used for drainage, was being piped and the valley was to be filled in for real estate development.

The specimens of *Potamogeton*, which had been collected from this locality, seemed to agree in all respects with *P. vaseyi*; but since this species apparently had never been reported in the Club's range, I did not venture to name it that, but called it *P. hybridus*, which is our most common species. When Professor M. L. Fernald borrowed the *Potamogeton* material from the University of Pennsylvania Her-

barium to study the *pusillus* group, my specimens were sent to him to be verified. A short time after, I received a card from Professor Fernald saying that he had gone over my material and that it was "certainly *P. vaseyi* at its southern limit." This species then becomes an interesting addition to the Philadelphia local flora.

Some Noteworthy Indigenous Species New to the Philadelphia Area

BAYARD LONG

There are few areas in the United States which have been more consistently and more continuously explored since the early days of American botany than the region about Philadelphia. Nevertheless, additions, in some numbers, continue to be made to the flora and scarcely a season passes that the range of some hitherto undetected species is not extended into our territory. Naturally the greater number of additions are alien species introduced through man and his works. But as the region is explored in more detail year after year, every square mile comes to get its botanical inspection and each unsuspected swale or thicket or pond-hole may prove to hold some rich store. It is from these natural spots, often of most limited extent, that come the rare and local species.

It may be asked *where* in any given area may be obtained the best results in species new to the region. On the one hand, territory which is unexplored should yield excellent results on even casual examination; on the other, that undergoing intensive exploration, even after many years, is seen to yield prolific results because of the very thoroughness of the work carried on there. Again, any specialized area, like the serpentine barrens of Pennsylvania or the pine barrens of New Jersey, is liable to produce unique species; while the most ordinary country, quite neglected because thought to contain nothing of interest, is almost as likely to bring forth some surprising and unexpected plant. The moral is that in the search for species new to an area no square mile may be neglected.

However, indigenous additions to any area obviously represent outposts of distribution of species having a greater frequence in the immediately adjoining territory. When there remain no longer any markedly unexplored regions within a local flora area, and it may be considered rather

thoroughly worked over as a whole, the general law of dissemination may apply to the occurrence of species new to the region: their greatest frequence will be found on the periphery of the area. This applies very well to the Philadelphia area: most of the recent additions come from Cape May County and from Lehigh County, representing the most pronounced influx of southern and northern types, respectively; some are from Berks County; others occur in New Castle and in Cecil Counties. A few of these have a slightly greater extension into the center of the area. But with the exception of a couple associated with alluvial soil and consequently the Delaware River, and one from Burlington County, New Jersey, it will be seen that the great majority occur on the edge of the area. Moreover, those having the wider occurrence are commonly found to be based upon specimens unidentified until recently but collected some time since, so they are not actually recent additions.

Further, it may be asked *what* kind of additions are to be looked for or expected. The showy plants naturally almost thrust themselves upon the attention of even the casual observer, but the great number of sedges, grasses, rushes and plants without bright flowers tend to be hidden in the mass of green vegetation, awaiting the prying eye of some more penetrating student. We cannot escape a sunflower but we may easily pass over unknowingly a quillwort. So, in any area such as that about Philadelphia, for our recent additions we have graduated into (or, possibly, to the thought of others, been reduced to) the groups of plants which are inconspicuous or obscure, or those which are critical in their identification or only recently monographed or studied. Of our plants new to the area more than half belong to the grasses, sedges and rushes and only a very few are real "flowers" with bright corollas. No regret need be felt by any one because of this situation, for it will be found that there is necessary only a proper speaking acquaintance with these lower brethren to convince oneself that they are quite as interesting and worthy, if not more so, than their lordly cousins.

In this paper is an account of some of the more notable of these discoveries not hitherto published.

Isoetes melanopoda J. Gay

N. J.: in swamp, under bushes, Bennett, Cape May County, August 6, 1917, O. H. Brown.

In the old days the center of attraction in New Jersey for every visiting botanist was Quaker Bridge in the heart of the Pine-barrens—for many years the only known spot for the much prized Curly Grass, *Schizaea pusilla*. The journey there by horse and wagon was by no means a short and easy one and so, with the discovery of new localities for *Schizaea* and the coming of the railways, a more accessible spot was found in Egg Harbor City, which, doubtless, has seen the arrival of nearly every botanist who has ever collected in southern New Jersey in these later days. But in 1907 a new place made a bid for attention and, now, if a visitor has only a single day to spend seeing some of the plants of New Jersey, the chances are that he will go to Bennett, in Cape May County, where lies a certain chain of land-locked pond-holes (often erroneously referred to as "bogs"). Here is probably the finest association of interesting plants to be found anywhere in southern New Jersey. The high spot of interest is held by the Snowy Orchis, *Gymnadeniopsis nivea*, one of the first discoveries made there. But *Coelorachis rugosa*, *Xyris elata*, *Boltonia asteroides*, *Rynchospora rariflora* all make close bids for favor. The remarkable thing, however, about these pond-holes is that their treasures seem well-nigh inexhaustible—or at least one never wholly despairs of the possibility of finding there some previously undetected species.

The conspicuous plants are naturally the first discovered in any favored spot; so now, after the years of searching these pond-holes at Bennett have undergone, they are disclosing only the most un-conspicuous plants. And what more obscure (in several senses) could be asked than a Quillwort, that most difficult group of fern-allies, *Isoetes*. To the keen observation of Mr. O. H. Brown, of Cape May, we owe this discovery—probably the most remarkable range extension made in our area in many years, and certainly the one least easily understood and most difficult for which to draw a satisfactory analogy in distribution.

The plant occurs on the bottom of one of these pond-holes and is to be found only when the seasonal condition of rainfall allows these pond-holes to dry up. The handsomest material, abundantly fruiting, has been obtained, however, in the shade of the bushes bordering the margin of the pond-hole. Mr. Brown's first collections, obtained in 1915, were too immature for certain determination and it was not until 1917 that he was able to get material containing good macrospores. The specialist in *Isoetes*, Mr. T. Chalkley Palmer, has studied with great care this material, as well as beautiful specimens obtained in 1927, and pronounces it *I. melanopoda*, a species of the Mississippi valley, heretofore not known east of Illinois. Our plants have pale leaf-bases (v. *pallida* Engelm.) but the sporanges within frequently appear dark. This is a form known to occur mixed with the typical plant having dark bases, found either singly or in stands. It may well be that our *I. melanopoda* in this outpost is all of the pale form.

ANDROPOGON TERNARIUS Michx.

N. J.: sandy woods, Highland Beach, Fishing Creek, Cape May County, September 17, 1916, O. H. Brown.

During the Botanical Symposium of the New York and Philadelphia Clubs held in southern Delaware in 1907 acquaintance was made with an exceedingly handsome Beard Grass, then commonly and appropriately known as *Andropogon argyraeus* from the very long, silvery-silky hairs covering much of the inflorescence. This plant was seen in just such country as covers much of southern New Jersey, and the enthusiasm of the Philadelphia botanists immediately picked upon this fine grass as a species to be extended to their own beloved "Jersey." This prognostication stayed fresh in mind for a season or two, but then was forgotten amid the influx of other favored species "to be looked for in New Jersey." Again to Mr. O. H. Brown, in his systematic explorations covering every foot of Cape May County, must be credited the ultimate addition of this plant to the New Jersey flora. He first collected it in 1916 at Highland Beach on the Bay Shore of the Cape May Peninsula. It was found growing

abundantly in open places in sandy woods and along old wood-roads, exactly as it occurs further south. It has been collected several times since in the same neighborhood and may be expected to extend its range locally in time, like other Beard Grasses.

Panicum trifolium Nash

N. J.: wet sand of old wood-road on streamlet above East Creek Pond, East Creek, Cape May County, June 21, 1919, Bayard Long 21598; Cold Spring Cemetery, Cold Spring, Cape May County, June 23, 1924, O. H. Brown; wet sandy ground, Quaker Bridge, Burlington County, July 14, 1923, R. R. Dreisbach 1633.

On a trip June 21, 1919, with Mr. O. H. Brown and Mr. Kenneth K. Mackenzie, we penetrated into a wild and unexplored area of northwestern Cape May County, back of Eldora. Following an old trail we crossed a streamlet, tributary to East Creek, some distance above the ancient village site of the same name and an old disused mill-pond (locally known as East Creek Pond). In the wet sand and sphagnum of the Pine-barrens here we found an exceedingly slender, smooth, little Panic Grass with long internodes and very few leaves. Its appearance suggested a robust *P. ensifolium*, but the foliage was conspicuously white-margined and at once indicated other possibilities. The critical judgement of Mrs. Agnes Chase placed our plant with *P. trifolium*, a southern Coastal Plain type previously known to North Carolina.

Some years later Mr. Brown again came upon the same plant, this time in the extreme southern part of Cape May County—in low grounds back of the cemetery at Cold Spring. And for a third time it was discovered by Mr. R. R. Dreisbach, an indefatigable mid-western collector for several seasons resident with us at Philadelphia, in the very center of the Pine-barrens at the old historic Quaker Bridge. Thus it would seem that *P. trifolium* may be considered as another rare but well distributed type of the New Jersey Pines. Mrs. Chase has passed upon these later collections also.

Panicum auburne Ashe

N. J.: Cape May, Cape May County, June 19, 1910, Chs. S. Williamson; Cape May Point, Cape May County, June

30, 1916, O. H. Brown; sandy woods, Bayside Road, Cape May County, June 14, 1911, O. H. Brown.

In the "New Gray's Manual" *P. auburne* was recorded from New Jersey by Professor Hitchcock, but when the occurrence was apparently repudiated by Hitchcock and Chase in their "Revision of Panicum" in 1910, it seemed that this species was lost to New Jersey. In the year of this publication, however, the late Charles S. Williamson, then one of our Philadelphia men most active in the field, collected in Cape May a small, velvety Panic Grass which strongly suggested the possibility of *P. auburne.* It resembled so markedly a reduced *P. lanuginosum* (its near ally) that there was reason for considerable confidence in the verity of such determination.

In succeeding years Mr. O. H. Brown began observing similar plants, sometimes noting a specimen, from his own observations, as "a smaller prostrate *lanuginosum.*" Naturally, in time, Mrs. Chase was called upon to add the weight of her verification, if possible, to our identification, and happily she was able to do so. Mr. Brown has met this plant more frequently than others of our collectors and reports having found it in a number of places in sandy woods from Cape May Point to Fishing Creek, on the Delaware Bay side of the Cape May Peninsula. This is, thus, one more southern type which reaches its northern limit on the Bayshore of Cape May.

Poa chapmanniana Scribn.

Del.: sandy soil near Townsend, May 17, 1883, A. Commons 240.

The large collection of Delaware plants made by the late Albert Commons and now at the Philadelphia Academy is a fertile source of many interesting records that never have been published. There is a good specimen here of a slender, upright, annual species of *Poa.* Naturally Commons originally took this to be the common introduced *P. annua,* but he later discovered it to be *P. chapmanniana,* the indigenous allied species of the south. The very obscure nerves of the lemmas and the copious webbing at the base of the florets, as well as the strict, upright habit and close leaf-sheaths show

the correctness of the determination. Professor A. S. Hitchcock has kindly examined the material and corroborated this identification. The plant has long been known as far north as Virginia and recently it has been recorded from the vicinity of Washington. Its extension now into Delaware is thus thoroughly logical, particularly so, since the new station is at Townsend, where occur so many other types of an austro-riparian distribution.

Poa alsodes Gray

Pa.: along a rivulet on wooded slope about 2½ miles E. of Hosensack P. O. crossroads, Lehigh County, May 25, 1924, Harold W. Prets 12048; shaded ravine, Martic Township, Lancaster County, May 7, 1864, Thos C. Porter.

Del.: dry rocky woods along Beaver Creek near the Brandywine, 7 miles north of Wilmington, New Castle County, May 8, 1897, A. Commons 83; Harvey, New Castle County, May 15, 1909, F. W. Pennell 2049.

With the exception of *P. cuspidata* (more familiarly known as *P. brachyphylla* or *P. brevifolia*) the early-flowering, native Poas of our woodlands form a group difficult to name with certainty. The above species, with *P. autumnalis* and *P. sylvestris*, have long been felt inadequate for the identification of our forms and, despite the impression that other species properly belonged in the higher altitudes of the Pennsylvania Alleghenies, certain collections of plants with distinctly pointed lemmas have been referred tentatively for some time to *P. alsodes*, but, up to the present, courage has been lacking to put that belief into more positive form.

The desire to name with certainty a collection made by Mr. Harold W. Pretz, in Lehigh County, furnished the necessary impetus to study this material and satisfy ourselves of the actual presence of *P. alsodes* in our area. In the very northern portion occurs Mr. Pretz's station in the valley of East Swamp Creek near Hosensack. He reports it as rare and local along a streamlet coming off the slopes of the ridge which farther westward is known as Mill Hill. From our westernmost county of Lancaster there is an old specimen collected by Dr. Thomas C. Porter in a shaded ravine in Martic Township. To the south Albert Commons had collected it

in Delaware in 1897, correctly naming the plant and noting it as new to the state. His station is definitely recorded as rocky woods along Beaver Creek near the Brandywine. This spot is just within the state line at the very crest of the curve of the northern boundary and lies some six miles from the city of Wilmington, to which, on his specimen label, he refers the locality—rather unfortunately, for an area so well spotted with villages. More recently Dr. Francis W. Pennell has added another locality for Delaware along one of the streams tributary to Naamans Creek, in the northeastern corner of the state.

This rather wide-spread occurrence in our area probably indicates that it may be looked for in any of the rich valleys of our Piedmont, particularly those having cool slopes supporting a more northern type of vegetation.

Carex deweyana Schwein.

Pa.: shelflike wooded place, partly sloping, on N. slope below crest of South Mountains, about ⅝ miles S. by S. E. of Mountainville P. O., Lehigh County, May 26, 1918, Harold W. Pretz 9291.

That the genus *Carex* has been a fertile source of interest and investigation among Philadelphia botanists for many years is evidenced by the few additional species (comparatively speaking, for such a large and complex group) which continued collecting over the local area has brought to light in recent times. It is true that a great many names have been added to our local Carex-flora in, say, the past fifteen years but for the most part these are the products of herbarium study and not the results of field-work.

Of species previously unknown in our area, one of the most interesting is *Carex deweyana*, discovered by Mr. Harold W. Pretz near Mountainville in Lehigh County. Being a well known and distinctive form (with *C. bromoides* constituting a sharply marked group of its own) it is obvious that the plant has escaped detection until now only because of its excessive rarity below the higher elevations of the Pennsylvania Alleghenies and the Poconos. In this mountain area, adjacent to our local territory, it is more or less well distributed, and,

appropriately enough, the new station is on a north-facing slope near the crest of one of the highest elevations of the South Mountains. The first collection was made from a single clump but later explorations in the immediate vicinity happily showed the species to be locally abundant in a lightly wooded opening. The plant grew in clumps or individuals among large rocks, apparently mostly rooted in soil shaded by the rocks, over which it ofttimes sprawled in luxuriance.

Carex impressa (S. H. Wright) Mackenzie

N. J.: Salem, Salem County, June 14, 1888, E. Livezey.
Pa.: Girard Point, Philadelphia, June 12, 1898, C. F. Saunders.

The critical examination by Mr. Kenneth K. Mackenzie of all the *Carex* material of the Academy collection has brought to light a number of notable range extensions, probably the least expected of which is that of *Carex impressa,* a close relative to *C. lacustris* (long confused with the Old World *C. riparia*) and differing largely in critical characters. This is apparently an austro-riparian type, well known in the Mississippi drainage (as far north as Indiana) and on the southern Coastal Plain (to North Carolina). Thus its occurrence in the Delaware Valley correlates well with that of various other southern types here reaching their northern limit. The two collections known, at Salem, New Jersey, and Girard Point, Philadelphia, neither of them recent, are both from the regions of extensive alluvial marshes. These areas of the lower Delaware, deep with heavy vegetation and cut by innumerable tidal-ditches and creeks, cover many square miles and obviously are explored only casually and by the most hardy of botanists, undiscouraged by the need of wallowing through mud and water. Further collecting here and a more careful examination of colonies of supposed *C. lacustris* (very similar in general appearance) it is hoped will make this plant known in the field to our present-day Philadelphia collectors.

Carex uberior (Mohr) Mackenzie

N. J.: near Woodbury, Gloucester County, May 31, 1861, William Wynne Wister.
Pa.: Cobbs Creek above the Baltimore Pike, June 16, 1864, Charles E. Smith.

Del.: swamp (J. Commons) Centreville, New Castle County, June, 1864, A. Commons.

Another sedge, hitherto unrecognized in our area, of very similar range and character to the last, is *Carex uberior.* This is like a more robust, overgrown, ex*uber*ant *C. stipata*—with greater stature, broader leaves, larger and more compound spikes, longer perigynia. In fact, at times, it more strongly simulates the Raven's-foot Sedge, *C. crus-corvi,* than our slender northern *C. stipata.* The plant has been known to the south of our area, possibly not nearer than North Carolina, but our several stations in New Jersey, Pennsylvania and Delaware, lying on the Coastal Plain or the immediately adjacent edge of the Piedmont, suggest that the plant must be of more frequent occurrence between North Carolina and New Jersey than at present known. Doubtless time will show this to be a species well distributed over the southern portion of our local territory. It is to be looked for in meadows and swales and swampy woods. Any very large supposed *C. stipata* should be considered under suspicion.

Carex leptonervia Fernald

Pa.: vicinity of streamlet on Triassic ridge about 1 mile S. E. by S. of Spring Valley, Lehigh County, May 13, 1911, Harold W. Pretz 3269.

The more difficult a group is to the general student the more prolific of interesting results does it prove at the hands of the specialist. Perhaps no section of *Carex* seems less satisfactory than that of *C. laxiflora* and its close allies. Consequently when Mr. Mackenzie examined our local series of this alliance he detected *C. leptonervia* among Mr. Harold W. Pretz's collections from Lehigh County, Pennsylvania.

This species is the northernmost representative of the group, characteristic of the northeastern United States and adjacent Canada but extending down the Appalachians to North Carolina. It lies closest to our *C. blanda* and is distinguished particularly by its almost nerveless perigynia and its strongly retrorsely serrulate bract-sheaths. In the Pennsylvanian Alleghenies and the Kittatinnies of North Jersey it is not uncommon and has been known previously as near as the New

Jersey side of the Delaware Water Gap, so this extension down off the mountains into our Piedmont is not wholly unexpected. Mr. Pretz's station lies near the village of Spring Valley in the corner of the county where Northampton and Bucks meet with Lehigh, and is in a meadow on the north slope (appropriately enough) of a ridge. This spot has long been known for the presence of *Trollius laxus,* rare and local with us, reported by Mr. Eugene A. Rau. Nearby are various other northern types like *Carex scabrata, Circaea alpina, Pyrola secunda.* Moreover, this is only one of several such pockets within a few miles containing good associations of species more characteristic to the northward, so possibly careful search in other meadows of the region may show *C. leptonervia* in further stations.

Eleocharis diandra C. Wright

N. J.: Delaware River shore, Delair, Camden County, September 30, 1907, S. S. Van Pelt and Bayard Long.

Pa.: between high and low water, sandy tidal shore of Delaware River, Tullytown, Bucks County, September 6, 1927, Bayard Long 33492.

The tidal-river allies of common species always prove to be of more than ordinary interest. On the estuarine shores of the Androscoggin, Merrimac, Connecticut and Hudson Rivers there grows an obscure sedge simulating *Eleocharis ovata* but the achene has a consistently very depressed tubercle and is always without bristles. This is *E. diandra.*

As long ago as 1911 this little plant had been detected in the Herbarium of the Philadelphia Botanical Club in a series of two-inch specimens collected by Mr. S. S. Van Pelt and the writer at Delair, not far above Camden, New Jersey. Soon after this Professor M. L. Fernald, then on a visit to Philadelphia, verified our identification. In the succeeding years this species has always been looked for whenever the tidal-shores of the Delaware have been explored, and at times not without success. The sandy and muddy alluvium between high and low water is its preferred habitat. We have not yet detected it in the lower reaches of the Delaware but from the region of Camden it is known to extend up the river (on both the New Jersey and Pennsylvania sides) for some considerable distance.

To the historical student it will be of interest to learn that in the herbarium of the Academy there are specimens of this plant bearing a ticket with the data in the hand of Thomas Nuttall: "Philad. Delaware." In all probability he collected this along the Delaware River near Kensington at the same time as his *Hemianthus micranthemoides* and *Crypta minima*, described in the first volume of the Journal of the Academy of Natural Sciences in 1817. This also he recognized as distinct, and gave it a name (designated with the accustomed star for a new species) but unfortunately failed to publish it.

Psilocarya scirpoides Torr.

N. J.: mud of dried-up pond, West Cape May, Cape May County, October 6, 1908, O. H. Brown.

In the northeastern United States there are two closely allied species of the little cyperaceous genus *Psilocarya*. One of these, *P. scirpoides*, has a very restricted northern range, as regards our local geographic position, occurring in eastern Massachusetts and Rhode Island; the other, *P. nitens*, an extended southern range reaching from Texas, along the coast, as far as Long Island.

When in 1908 Mr. O. H. Brown discovered one of these plants in Cape May (an area so definitely associated in mind with southern types) it was natural to assume that the New Jersey gap in the range of *P. nitens* was being filled. *P. nitens*, thus, was reported and accepted for New Jersey and no question was raised of the identity of this plant until in 1913 Mr. Brown again discovered a *Psilocarya*, in a new locality, the famous pond-holes near Bennett. In examining the achenes of this material with a lens and comparing them with those of the first collection of 1908, his keen discrimination showed him that he had both species, the one from West Cape May being *P. scirpoides* and that from Bennett, *P. nitens*. Mr. Kenneth K. Mackenzie, the authority on *Carex* and well versed in other cyperaceous genera, was then in Cape May and these identifications were at once corroborated by him.

Near Cape May City, in what is known as West Cape May, is a series of land-locked pond-holes, somewhat similar to those near Bennett. It is on the desiccating mud-bottoms of

these depressions, when the water disappears, that *P. scirpoides* occurs. Consequently, when these pond-holes remain inundated until late in the season these annual sedges do not appear. If seasons are continuously unfavorable for germination and growth, the species may be absent even for several years. Mr. Brown has been interested in this periodic occurrence of the plant and has made note of conditions from year to year. For example in 1918 it appeared abundantly again. In 1919 and 1920 it was apparently absent, while in 1921 and 1922 it was again present.

The occurrence of the species in Cape May is rather unexpected but it must be remembered that the flora of this area, although characteristically southern, is by no means wholly so. In fact it is decidedly complex and among the many northern types occur even such species as *Carex buxbaumii* and *Menyanthes trifoliata*—the latter having a station close by the *Psilocarya* in the same pond-hole.

Mr. Brown's original collection of *P. nitens* at the Bennett pond-holes was made August 12, 1913, and it has been seen there only a few times since. It probably occurs under similar conditions and behaves in the same way seasonally.

Rynchospora glomerata (L.) Vahl.

N. J.: margin of fresh meadows east of the town, Cape May Court House, Cape May County, August 13, 1911, Bayard Long 6684; Bradner's Run, Cold Spring, Cape May County, July 31, 1921, O. H. Brown.

Del.: moist soil, Red Granary Mills near Slaughter Beach, August 12, 1897, A. Commons; moist soil, Smyrna, October 10, 1866, A. Commons.

It is to be recalled that Dr. S. F. Blake has shown the true *Rynchospora glomerata* to be the large southern plant which was named *R. paniculata* by Gray and has been treated in recent years as a variety of *R. glomerata.* (The proper name for the more northern plant which long has passed for *R. glomerata* is *R. capitellata* (Michx.) Vahl.) This southern type has numerous constant characters of specific value: greater size of plant, broader foliage, looser inflorescence, fewer-fruited spikelet, larger and more umbonate achenes. Its range is commonly credited to Maryland, but this may

now be extended, upon the basis of several specimens, through Delaware into southern New Jersey.

Albert Commons, in his thorough exploration of Delaware, had distinguished this plant as long ago as 1866, having collected it near Smyrna. More than thirty years later he again discovered a new station near Slaughter Beach. Both these collections are of tall, handsome plants with large, loose, lax inflorescences. A similar plant was met by the writer in 1911 on a memorable day's botanizing along that portion of the Coast Strip of New Jersey lying east of Cape May Court House. To the notable discoveries of that day (among them the restoration of *Populus heterophylla* and *Hydrocotyle canbyi* to the state) may be added *Rynchospora glomerata*, not heretofore known in New Jersey. It comes to mind at this late date as a waist-high plant occurring at the thicket-margins of the meadows. In 1921 Mr. O. H. Brown added a second station for New Jersey—along Bradner's Run, in Cold Spring, Cape May County.

Possibly the species finds its northern limit in Cape May, but only close observation in the field and careful examination of any unusually large forms of "Rynchospora glomerata" will show the extent of its occurrence with us.

JUNCUS FILIFORMIS Willd.

Pa.: deep rooted in alluvial sand on the open springy rocky outcropping shale shores of Lehigh River, about 1¼ to 1½ miles S. by S. E. of Laury's (L. V. R. R.) Station, August 17, 1924, Harold W. Pretz 12291.

The large streams traversing a local flora area are well known as the entrance ports of various species: on our largest river, the Delaware, many northern plants enter our district from its upper course and numerous southern types reach us through its mouth. The same is true for the smaller streams, and the Lehigh is no exception. Down along this river come the northern *Panicularia laxa* (known from the Pocono Plateau and Broad Mountain), *P. melicaria* (characteristic of the mountains of Pennsylvania), *P. canadensis* (so rare in our Piedmont). Even better examples are the occurrence of certain other species, also made known by Mr. Harold W.

Pretz, it is almost needless to say—so closely is the name of Lehigh associated with his own in any botanical discovery. Near Lehigh Gap and again at Slatington he has found *Chamaedaphne calyculata,* a typical northern species previously known in the state only from the mountains. But the peak of discovery along the Lehigh was probably reached when Mr. Pretz found *Juncus filiformis* near Laury's Station, midway between Lehigh Gap and Slatington. The plant occurs in clumps, deep-rooted in wet alluvial sand, sharing a foothold with species like *Osmunda regalis* which form with their intertwined roots a shore-line highly resistant to average high water. Nearby is *Oxycoccus macrocarpus* and the northern *Scirpus rubrotinctus* (which should be looked for more assiduously on the Pocono Plateau). *Juncus filiformis* has been long known from Naomi Pines and Long Pond on the upper-reaches of the tributaries of the Lehigh on the Pocono. Whether this new occurrence represents in fact a comparatively recent extension of the range of the species or a relict of a wider distribution in former days, it is impossible to say. The waters of the Lehigh are now heavily laden with sulphur and other chemical refuse, and year by year there is a noticeable decrease in the aquatic vegetation, as well as that of the shore-line. One may easily speculate whether in "the good old days" before the river was spoiled there may not have been many more occurrences in our area of species that are found along the upper-reaches of the stream.

Corallorhiza trifida Chatelain

N. J.: moist, sandy loam of slight knoll in woods along Haynes Creek, Medford, Burlington County, April 26, 1921, Bayard Long 23946.

It is rarely that one has the good fortune to find an orchid new to an area so long explored as the Philadelphia district and in addition so well botanized as southern New Jersey, but this was the happy experience of Dr. H. B. Meredith and the writer in the early spring of 1921. The previous season we had found the dead culms of *Poa cuspidata* on the wooded slopes of Haynes Creek near Medford—a region which, under the explorations of Dr. Witmer Stone and the late Steward-

son Brown already had produced so many plants unique in the flora of southern New Jersey—and naturally it was eminently desirable to collect in fresh panicles such an interesting and rare grass. Judge our surprise and delight when on a nearby knoll about the base of a large oak, we espied, pushing through the dead leaves of the still wintry forest-floor the little, leafless, yellowish plants of the Early Coral-root, *Corallorhiza trifida.* Some stems were already weighted with the swelling yellow capsules but others bore their tiny eye-bright flowers uplifted to the light, while numerous blossoms had suffered from the April frosts. Here and there the dead and dried stems, with their split capsules, of the previous season were present with the fresh plants. In all, we found some twenty plants in the colony, but no others were discernible in the vicinity despite careful search.

Although the species, previously not known nearer than the Poconos and the Alleghenies of mountainous Pennsylvania and the higher elevations of northern New Jersey, may seem considerably out of range on the New Jersey Coastal Plain, it must be remembered that a great many characteristic northern plants occur sporadically in southern New Jersey. Within a few feet of the Coral-root are well known stations for such proper associates as *Pyrola secunda* and *P. chlorantha.*

It may be mentioned that the record of the species for Avon, New Jersey in Taylor's "Flora of the Vicinity of New York" proves, from dissections kindly made by Dr. John K. Small, to be based upon material of *C. maculata.*

Salix serissima (Bailey) Fernald

Pa.: in open marshy (Wilt's Mill) meadows along Trout Creek, E. of 12th Ward & about $\frac{7}{8}$ miles S. E. by S. of Centre Square, Allentown, Lehigh County, May 6, 1925, Harold W. Pretz 12501.

Perhaps no habitat in our latitude intrigues the interest and imagination of a botanist more thoroughly than a good swale—certainly there are more swales ("swamps" or "bogs" as they chance to be called) and such like spots in our region, which have become botanically famous because of their remarkable plant associations, than there are lakes, rivers, moun-

tains, whatnot which have received the attention of collectors. These spots are especially notable in most cases because here occurs a heterogeneous association of plants, the striking element of which is a series of species unknown in the immediately surrounding area—hence the general interest attached to them. If they are "rich" swales, with more or less neutral or limy soils, they are likely to support various species more common to the north or characteristic in our uplands. Such spots are the famous Dillerville Swamp near Lancaster, Pennsylvania, noted for its stations of *Juncus balticus, J. brachycephalus, Rynchospora capillacea;* and the Lindenwold Bog near the village of the same name in Camden County, New Jersey, where occur *Muhlenbergia foliosa, Carex interior, Gentiana crinita, Castilleja coccinea,* so notable for southern New Jersey. If their soils incline to be acid and they occur in the Piedmont they may contain a Coastal Plain element. Among these are the Smithville Swamp in Lancaster County, Pennsylvania, from which have been reported *Andropogon glomeratus, Leucothoë racemosa, Asclepias rubra;* and Fraser's Bog, near Willow Grove in Montgomery County, Pennsylvania, where have been found *Blephariglottis cristata, Polygala cruciata, Panicum lucidum.*

A new and remarkable swale of this type, locally known as "Wilt's Mill Meadows" may be reported from Allentown, Pennsylvania. It must have been a very thrilling experience to Mr. Harold W. Pretz when he first discovered this unique spot, not merely because of the host of interesting species growing there, but because it was almost "in his own back yard." It lies closely adjacent to Allentown (and now within the city limits) extending along Trout Creek for the distance of a few city blocks and at no place is it probably as much as a block in width. Areas of slightly higher ground occur with others of marshy or naturally springy character.

Probably the presence of *Parnassia caroliniana* first drew attention to this spot. Later were found *Vagnera stellata, Muhlenbergia racemosa, Carex pallescens, Scleria verticillata, Juncus nodosus*—all, the only stations in the region. Among the ordinary shrubs of eastern Pennsylvania are plants of the northern *Alnus incana* and in the wetter thickets, the in-

digenous *Ribes hirtellum*, almost unknown in native occurrences with us. But the most notable species here is the Autumn Willow, *Salix serissima*, previously unknown in Pennsylvania and at a new southern limit, extended from northern New Jersey.

It was first collected in 1915 in foliage only but its identity was strongly suspected from its thick, pointed leaves, white underneath, and the presence of the characteristic glands on the petioles. Verification was obtained from Dr. Camillo Schneider, the Austrian specialist, during his visit in this country. Later handsome flowering specimens were obtained by Mr. Pretz to complete the material of the species. This is a willow occurring mostly in calcareous regions. It is very characteristic in the limy swamps of Sussex County, New Jersey, and in the rich soil of this swale in Lehigh County (witness the presence of the distinctly calcicolous *Parnassia*) it obviously has found very congenial conditions. Leastways this spot is too remarkable in its association of northern species for any question to be raised on the indigenous character of the willow.

RUMEX BRITANNICA L.

Pa.: wet boggy meadow along Trout Creek, 12th Ward, Allentown, Lehigh County, June 28, 1912, Harold W. Pretz 4701; close to water's edge of streamlet in the meadows about ¼ mile S. W. of Trexlertown, P. O., crossroads, Lehigh County, July 18, 1926, Harold W. Pretz 12865.

Taylor's statement in the "Flora of the Vicinity of New York" that the Great Water Dock, *Rumex britannica* occurs "throughout the range in ecologically favorable habitats" is rather misleading for the southern part of his range. Published records and herbarium specimens might possibly suggest such a generalization to be applicable to the Philadelphia area but the examination of material, so named, at once shows the records to be based upon either *R. altissimus* or *R. verticillatus* (or even *R. crispus*). This northern plant has been well known from upper New Jersey and the mountain area of eastern Pennsylvania but until rather recently we have thought that there was no evidence at all of its occurrence below these higher elevations.

It may now be recorded, upon the basis of authentic material, as actually present in the Piedmont of our area but exceedingly rare and local. There is a very old but excellent specimen in the Schweinitz Herbarium from Bethlehem, Pennsylvania, originally named *R. verticillatus* and long passed as such in the Academy Herbarium. The vicissitudes which old collections often suffer in the mounting frequently lead one to question them but there need be now no possible doubt of the authenticity of this material, as modern collections from the same general region have been made by Mr. Harold W. Pretz. One station is in the remarkable swales along Trout Creek within the city limits of Allentown ("Wilt's Mill Meadows" described above in the note on *Salix serissima*). There is a colony of several plants, tall, robust docks with characteristic large basal leaves, in an open marshy spot, seepy from springs, along a rill draining into the creek. A second station occurs in a springy swale near Trexlertown (rather similar to Wilt's Mill Meadows but not so noteworthy for its plant association). Again only a few plants or clumps are present, but they are fine, large individuals quite at home with their feet in water, as in the north.

LINUM SULCATUM Riddell

N. J.: Fairmount, Hunterdon County, July 14, 1904, H. L. Fisher.

Pa.: open grassy, pasture-like place at edge of woods close to crest of South Mountains about 1⅝ miles S. by S. W. of Mountainville, P. O., Lehigh County, September 4, 1921, Harold W. Pretz 11178; open uncultivated grassy-scrubby slope at edge of open fields about ⅜ miles, N. W. by N. of Wescoesville, P. O., Lehigh County, September 19, 1920, Harold W. Pretz 10534; Radnor, Delaware County, October 2, 1907, Edwin B. Bartram.

Although *Linum sulcatum* was reported from several stations in Keller and Brown's "Flora of Philadelphia," the bases of these records all prove to rest upon misidentification and our first authentic material was collected by Mr. Edwin B. Bartram in 1907 near Radnor, in Delaware County, Pennsylvania. This locality was not far from Mr. Bartram's home and his familiarity with the conditions there led him to believe that this unusual Yellow Flax was introduced. Some

years later Dr. H. B. Meredith and the writer visited this spot to see the flax growing. The locality is an ordinary open hillside thickly covered with Beard Grasses and scattered bushes—such a sterile slope as may be seen almost anywhere in southeastern Pennsylvania. The flax grew sparingly in the more open places and appeared quite like any other small native herb—at least there was no obvious evidence of introduction, it seemed to us. So the matter was allowed perforce to rest, awaiting other evidence.

This came with the collection made by Mr. Harold W. Pretz in 1920 near Wescoesville in Lehigh County, Pennsylvania. Being a species unfamiliar in our area, but well known westward, it naturally came under suspicion of being introduced. However, again the plant occurred on an open scrubby slope with a characteristic association of native grasses and herbs. The following year another station was discovered by Mr. Pretz in the same county, this time on the crest of the South Mountains near Mountainville. The inclination was still to consider whether the grassy-scrubby opening, where the plant occurred, had not been a clearing under cultivation, but once more the plant association was the usual native one of barren, sandy grounds. From the herbarium of Mr. Hiram L. Fisher, now incorporated in the Academy Herbarium, has come the latest evidence. Mr. Fisher has long been resident in the Piedmont of upper-middle New Jersey and in 1904 collected this plant near Fairmount in Hunterdon County. On inquiry he reports that it was found on high stony ground. He is quite certain that it is a native and could be found in other places in the general region.

Now, *Linum sulcatum* is a plant of dry or sandy soils, most frequent in the Mississippi Valley but extending eastward, especially along the mountains, as far as Massachusetts and Vermont. Moreover there are stations known in the Pennsylvania Alleghenies in Lackawanna and Huntington Counties. The host of species, more common in the Alleghenies, but found sporadically in the adjacent Piedmont of our area is entirely too large to neglect the evidence of so many occurrences quite analogous to that of *Linum sulcatum*. It would seem not unreasonable to believe that these various stations

are the outposts of a quite natural distribution—at least until a more convincing weight of evidence is found to the contrary.

Polemonium van-bruntiae Britton

Pa.: swampy woods, in bed of streamlet, Lobachsville, Berks County, June 27, 1915, Bayard Long 12629.

In 1907 there appeared in the November number of "Torreya" a little article on "Some Rare and Interesting Plants of Berks County, Pennsylvania," under the then unfamiliar name of W. H. Leibelsperger of Fleetwood, Pennsylvania. Here were reported *Botrychium lanceolatum, B. simplex, Habenaria orbiculata, Coptis trifolia.* Such an assemblage of species was so notable for the region that the article easily stuck firmly in mind and when a location for the 1915 Botanical Symposium of the Torrey Club and the Philadelphia Club over the Fourth of July was sought, Fleetwood was proposed and met with much favor. Consequently Mr. Leibelsperger was communicated with and expressed great pleasure at the proposed descent of fellow botanists upon his village. A preliminary survey of the region was arranged under his amiable guidance for the end of June and for several days some members of the Philadelphia Botanical Club enjoyed particularly excellent collecting in a region hitherto unknown to us. The request for a sight of the rare Botrychiums was met in the gathering twilight of the evening of our arrival and during the following two days only the time necessary for eating and sleeping was lost in our "personally conducted tour" over the areas of botanical interest.

The day's tramp which took us over the extensions of the Irish Mountains in the vicinity of Lobachsville furnished the high spots of discovery. At one point Mr. Leibelsperger remarked that nearby he had something of special interest to show us and we followed him expectantly along the rocky bed of a shallow streamlet, leisurely picking its way through open swampy woods. Here and there were tiny islets where the water divided and on one of these we found ourselves staring, almost open-mouthed, at a beautiful colony of Jacob's Ladder, *Polemonium van-bruntiae,* in full fresh flower. The species has been known from several stations in the Pennsylvania

Alleghenies but not previously below these higher elevations. Fruiting material of this very desirable addition to our local flora was kindly collected by Mr. Leibelsperger later in the season.

PHLOX OVATA L.

Pa.: border of moist woods, Lobachsville, Berks County, June 27, 1915, Bayard Long 12649.

The sight of the lovely Jacob's Ladder, *Polemonium van-bruntiae,* growing wild in our area, suggested the culmination of thrills of that memorable first exploration of Berks County, Pennsylvania, but we were to have still another one. As we skirted along the foot of a rocky wooded slope of the mountains near Lobachsville we espied on the margin of the woods a beautiful pink Phlox in full bloom. On first sight it suggested a low form of the common meadow species, *Phlox maculata,* familiar to us, but we soon saw that, besides its low habit, it had unspotted stems arising from a prostrate base. When a manual was consulted little doubt was felt that we had come upon a colony of the Mountain Phlox, *P. ovata,* and so it proved on comparison in the herbarium.

This is a typical Appalachian species extending along the mountains from Alabama and North Carolina to Pennsylvania, its occurrence in our state resting upon a station, reported by Dr. Thomas C. Porter, in the Barrens of Huntingdon County. Our new station in Berks County is thus a considerable range extension to the northeast. The plant is obviously too rare and local at this end of its range for any very sanguine hopes to be held of further occurrences with us.

ANTENNARIA SOLITARIA Rydb.

Md.: shady bank, east bank of Elk River, 2 miles south of Elkton, Cecil County, May 8, 1927, H. E. Stone.

Of interest, second only to *Isoetes melanopoda,* is the discovery of *Antennaria solitaria* within our area. This species had been considered a quite definitely southern Appalachian type. extending northward along the mountain slopes, or closely adjacent Piedmont, to Fayette County of western Pennsylvania. And when Mr. Hugh E. Stone, now returned

to the botanical field after some years journeying in the land of business, reported finding the species in the flat Coastal Plain country of Chesapeake Bay in Cecil County, Maryland, his determination of the species was looked upon, it is to be confessed, with considerable doubt, and some abnormal one-flowered form of *A. plantaginifolia* was suggested—so far out of range did it seem. The specimens show thriving plants with the characteristic well developed stolons, apparently quite typically of the species. Mr. Stone reports a large colony on the crest of steep banks just above the waters of Elk River, some two miles south of Elkton.

The discovery of this species clearly indicates that in this region lie unforseen botanical possibilities. On another trip the past season farther down Elk River, Mr. Stone found on Middle Neck a fine station for that very local (with us) and very beautiful Wake-robin, *Trillium grandiflorum*, which hardly would have been anticipated occurring in the region—and in fact may possibly be a new record for Maryland. Until the exploration of Cape May was systematically undertaken (little more than twenty years ago) we had no appreciation of the remarkable aggregation of interesting species here having their range outposts, and it may well be within reason to suspect that the head of Chesapeake Bay may be another such region.

Charles D. Lippincott

On January 19, 1926, Charles D. Lippincott, one of the founders of our Botanical Club, died at his home in Swedesboro, New Jersey. Although in his eighty-fifth year, and so situated that attendance required a long bus-ride that only brought him home toward 1 A. M., no member of our group more faithfully attended each meeting. Until a few months of the end we enjoyed his interest and his quiet kindly presence.

Born September 18, 1841 Mr. Lippincott was a lifelong resident of Gloucester County, New Jersey. He was a farmer's son, and early became interested in plants, both cultivated and wild. Like his older associate in the study of the flora of that county, Benjamin Heritage, he was a member of the Society of Friends, cherishing the speech and the simplicity of spirit of that people. Still, as a young man he had responded to the call of apprehended duty, volunteering for service in the Civil War. serving from 1862 to 1865 when he was discharged with the rank of Captain. His daughter tells us that he received five wounds in battle.

He married soon after the war and for several years farmed on the family homestead where his three children were born. Later he moved to Swedesboro to engage in business as a general storekeeper. Quite late in life he retired from this pursuit, but until the time of his death continued his special work as a land surveyor.

Deeply interested in what concerned Gloucester County, we find him conversant also with its history. He was a valued member and trustee of the Gloucester County Historical Society. Doubtless it was his love for what seemed historically precious as well as the urge of his own religious nature that induced his efforts to sustain the rural Friends' meetings of his section, many of which dated from the time of Penn.

Through many years he collected plants, and in 1924 his herbarium was presented to the Academy of Natural Sciences. Added to our Local Herbarium, it has much strengthened our representation from Gloucester County. While other plants were included, it is with this local interest that his name will be remembered botanically. Of remarkable species first detected by him in this area may be mentioned *Cyperus pseudovegetus* Steud., *Carex conoidea* Schkuhr, *C. tetanica* Schkuhr, and *Aplectrum hyemale* (Muhl.) Torr.

Clayton D. Fretz

On August 17, 1926, our Club lost another of its oldest members in the death of Clayton D. Fretz, M.D., of Sellersville, Pennsylvania. He had been an active member since 1892, but owing to his advanced age and the fact that he lived so far away from the Academy, he was unable to attend any of the meetings in recent years.

He was a well-known medical practitioner in upper Bucks County and his extensive practice brought him into some remote sections of the County, making it possible for him to observe the flora of these almost daily during a long and active career. He was graduated from the Medical School of the University of Pennsylvania in 1868 and immediately located at Sellersville, Pennsylvania, where he lived until the time of his death.

Dr. Fretz was born on the old Fretz farm in Fretz Valley, Bedminister Township, Bucks County, Pennsylvania, on November 16, 1844. Here he spent his boyhood days in an environment which, at an early age, led him to develop an interest in plant life.

After receiving a preliminary education in the public schools of Bedminister Township he spent several terms at Overholt's Academy, at North Wales, Pennsylvania. Later he became a teacher in the public schools of Bucks County. It was while employed as teacher of the old Monroe school in Durham Township, in a rich botanical region in northeastern Bucks County, that he began the systematic study of botany, an interest that was to continue until his death.

After teaching school for four years he began to read medicine with Dr. I. S. Moyer, of Plumsteadville, and later of Quakertown, Pennsylvania. At that time Dr. Moyer was preparing a catalogue of the flora of Bucks County and both the preceptor and his student found time to explore many sections of Bucks County and compile a list of the plants within the area. This catalogue was published in 1876 as an appendix to Col. Davis's "History of Bucks County." In

1905 Dr. Fretz revised this "Catalogue of the Flora of Bucks County," which was published in the second edition of Col. Davis's history. About 300 new plants were added to Dr. Moyer's former catalogue.

In the earlier days of the Club, Dr. Fretz introduced many of the members to the different botanical stations of upper Bucks County. He collected extensively in Pennsylvania and New Jersey and also acquired a considerable collection of plants of the eastern and southern United States through exchanges. Some years ago he donated his entire collection of herbarium specimens to the Club and the General Herbarium of the Academy.

His passing marks the close of a long and useful career. His contribution to botany consists not only of his work in the field and his writings but also the inspiration and guidance which he gave to others who were interested in various phases of botany.

General Notes

Deaths of Mr. Beringer and Mr. Urban. Two other losses to the Club must be noted in this number of Bartonia, both of men interested in the Local Flora but whose outstanding achievements lay in other fields than botany. Mr. George M. Beringer, born in Philadelphia in 1860, attained distinguished standing as a pharmacist, receiving many honors in that work. He was one of the founders of the Philadelphia Botanical Club in 1892, and was its president for a number of years. Even before that he had participated in the outings led by Dr. J. Bernard Brinton, the nucleus from which our Club developed. Of recent years his interest in Materia Medica and Pharmacy had made too great demands upon his time for frequent attendance at our meetings, but he ever retained his interest in the Club's welfare and quietly gave his assistance to enable the proper care of our Local Herbarium. He died at Collingswood, N. J., June 23, 1928, after a brief illness.

Mr. A. E. Urban, of Lancaster, Pa., who only joined our Club in October, 1926, died February 3, 1927. He was a printer by business, being long associated with the Intelligencer Printing Co. of that city, but in the last few years of his life with The Science Press Printing Company. He was himself responsible for attracting to Lancaster a considerable proportion of the scientific printing for which the city is now famous. Our last issue of "Bartonia" passed under his care, and the editor recalls Mr. Urban's comment as to the pleasure with which he attended to copy in his favorite field of botany. It was only as an avocation that the busy printer could devote occasional hours to collecting plants, but he was hopeful on nearing sixty of finding more leisure for his hobby. His coming life would have given us a member and friend in the rich, historic botanical county of Lancaster, without representation with us since the death of Joel J. Carter.

Death of Mr. Poyser. Still another loss must be recorded in the death on February 29, 1928, of Mr. William Aldworth Poyser. Our older members will recall his zealous collecting and study of ferns some twenty years ago. In our next issue is to appear a more extended account of his work.

Trimble Herbarium. Mr. William Trimble, of West Chester, Pa., has presented to the Local Herbarium a considerable series of plants mostly from southeastern Pennsylvania, and especially from near Concordville, Delaware Co., where he farmed for many years. All his life he has been devoted to botany, and although now beyond eighty years of age he is ever ready to take part in any expedition afoot or by car that goes in search of plants. We are indeed grateful for a collection that embodies the observations of so long a period.

Recent Additions to the Local Herbarium. We can now report the incorporation in the Local Herbarium of all the local specimens in the herbaria of H. L. Fisher and E. B. Bartram, given several years ago. Both were large series of valuable specimens and have added to the Academy's general as well as local wealth. Mr. Bartram's herbarium, especially, was one of the most valuable gifts received by the botanical department of the Academy in recent years; his relinquishment of it was to enable concentration upon the study of mosses in which field he is now publishing studies of such note as to mark him one of the leading bryologists of America.

Personnel in the Local Herbarium. In May, 1928, after six years' service, Mr. George W. Bassett left the Academy for a post at the historic Bartram's Garden, West Philadelphia, work nearer to his special interest in horticulture. His place has not been filled, except by student assistance. Mr. Walter M. Benner, of the Central High School and President of our Club, has been giving a large portion of his time to assisting Mr. Bayard Long in curatorial work. Mr. Benner has now completed an exhaustive study of the flora of Bucks Co., Pennsylvania, on which he has been engaged for several years.

Some Personal Notes. Mr. John M. Fogg, Jr., who was in 1927–28 a student in taxonomic botany at Harvard University, has returned to the University of Pennsylvania where he holds an instructorship in botany. He is planning work on geographical and taxonomic problems in the Eastern United States, and expects to offer a course with important bearing upon our local flora.

Mr. R. R. Dreisbach, who two years ago moved from Philadelphia to Midland, Mich., continues his botanical interest by making extensive collections in that state. So much of Michigan is little represented in herbaria, that the Academy particularly welcomed a large series of specimens sent by him last April.

We occasionally hear from our distinguished early member, Charles Francis Saunders, now a Corresponding Member long resident in California. Usually it is that he has written some charming book about California, its wild plant-life or the treasures of its gardens. Our Academy's herbarium has many of his Pennsylvania collections made thirty years ago when resident here.

Program of Meetings of the Philadelphia Botanical Club from January, 1926, to December, 1927

1926

Date	Subject	Speaker	Attendance
Jan. 28	The story of Penn's Woods	Dr. J. S. Illick	25
Feb. 25	The desert vegetation of the southwestern United States	Dr. J. W. Harshberger	25
Mar. 25	Alpine vegetation of the Selkirk Mountains	John M. Fogg, Jr.	21
Apr. 22	The expedition to Newfoundland in 1925	Bayard Long	19
May 27	Collecting in the Andes of western Colombia	Dr. F. W. Pennell	25
Sept. 23	Summer botanical experiences	Members	16
Oct. 28	The late spring flora of northern Michigan	Harry W. Trudell	21
Nov. 18	A botanical survey of Penikese Island, Buzzards Bay	John M. Fogg, Jr.	16
Dec. 23	A trip through the southern United States	Dr. E. T. Wherry	24

1927

Jan. 27	Mosses and moss collecting	Dr. Rodney H. True	21
Feb. 24	Identification of trees in winter	J. Fletcher Street	25
Mar. 24	Tropical Orchids	Dr. Wm. R. Taylor	20
Apr. 28	Flora of the wall tops and house tops of Swanage, England	Dr. John M. Macfarlane	18
May 26	Reports of recent trips	Members	9
Sept. 22	Summer botanical experiences	Members	15
Oct. 27	Plant areas in Bucks County	Walter M. Benner	22
Nov. 17	Chester County flora	Hugh E. Stone	15
Dec. 22	Motor trips through the Appalachians	Dr. E. T. Wherry	26

Officers of the Philadelphia Botanical Club for 1927

JOHN M. FOGG, JR., *President*
DR. H. B. MEREDITH, *Vice-President*
HARRY W. TRUDELL, *Secretary*
ARTHUR N. LEEDS, *Treasurer*
BAYARD LONG, *Curator*

Officers and Members of the Philadelphia Botanical Club, 1928

WALTER M. BENNER, *President*
H. R. THOMPSON, *Vice-President*
HUGH E. STONE, *Secretary*
ARTHUR N. LEEDS, *Treasurer*
BAYARD LONG, *Curator*

ACTIVE MEMBERS

Elected

J. W. Adams, 108 West Wishart St., Philadelphia, Pa. 1925
Edwin B. Bartram, Bushkill, Pa. 1906
Russell Bebler, 135 East Phil Ellena St., Germantown, Pa. 1919
Walter M. Benner, 5636 Loretta Ave., Philadelphia, Pa. 1912
C. E. Bliss, Welsbach Co., Gloucester, N. J. 1924
John A. Borneman, Norwood, Pa. 1912
Dr. Carl Boyer, Wagner Institute, Philadelphia, Pa. 1926
J. C. Boyle, 223 Kenmore Rd., Brookline, Pa. 1919
Rev. T. R. Brendle, Green Lane, Montgomery Co., Pa. 1918
Herman G. Brinkman, 723 West Huntington St., Philadelphia, Pa. 1919
Otway H. Brown, Cape May, N. J. 1925*
Dr. Herman A. Burgin, 204 W. Rittenhouse St., Philadelphia, Pa. 1915
James J. Burk, Addingham, Pa. 1919
Van Buren Connell, 3620 Baring St., Philadelphia, Pa. 1924
Dr. Albert Cornog, 5836 Lansdowne Ave., Philadelphia, Pa. 1923
Joseph Crawford, Phipps Inst., 7th & Lombard Sts., Phila., Pa. Founder
Herman J. Darmstaater, M. D., 4617 York Road, Philadelphia, Pa. 1926
L. N. Dorsey, 5014 Schuyler St., Philadelphia, Pa. 1919
F. E. Draper, 208 Broadway, Camden, N. J. 1921
Robert R. Dreisbach, Midland, Mich. 1922
Dr. John W. Eckfeldt, 502 Kathmere Road, Brookline, Pa. 1892
John M. Fogg, Jr., University of Pennsylvania, Phila., Pa. 1921
J. H. Grove, 800 N. 63rd St., Philadelphia, Pa. 1905

* Corresponding Member from 1908.

V. HAGUE, North Wales, Pa. 1924
DR. JOHN W. HARSHBERGER, 4839 Walton Ave., Philadelphia, Pa. ... 1911
A. M. HENRY, U. S. Appraisers Stores, 134 S. 2nd St., Phila., Pa. 1927
F. F. HUBER, Pennsburg, Pa. 1911
GEORGE JOHNSON, 803 Edgmont Ave,, Chester, Pa. 1922
DR. IDA A. KELLER, 4424 Osage Ave., Philadelphia, Pa. 1892
REV. T. V. KISTLER, Pennsburg, Pa. 1911
PROF. W. A. KLINE, Ursinus College, Collegeville, Pa. 1911
DR. HENRY A. LAESSLE, 59th and Market Sts., Philadelphia, Pa. 1894
DR. H. PEARCE LAKIN, 14 E. Main St., Lansdale, Pa. 1906
MRS. H. PEARCE LAKIN, 14 E. Main St., Lansdale, Pa. 1906
HENRY A. LANG, 2311 Green St., Philadelphia, Pa. 1901
DR. CHAS. H. LAWALL, 39 S. 10th St., Philadelphia, Pa. 1896
ARTHUR N. LEEDS, 5321 Baynton St., Philadelphia, Pa. ..... Founder
MORRIS E. LEEDS, 5321 Baynton St., Philadelphia, Pa. ..... Founder
DR. T. MONTGOMERY LIGHTFOOT, 5935 Green St., Philadelphia, Pa. 1892
BAYARD LONG, 250 Ashbourne Rd., Elkins Park, Pa. 1906
MAYNE REID LONGSTRETH, 1420 Chestnut St., Philadelphia, Pa. 1892
DR. A. S. MARTIN, Norristown, Pa. 1899
SAMSON MCDOWELL, JR., 4840 Rooseveldt Boulev'd, Phila., Pa. 1926
DR. H. B. MEREDITH, 208 N. 34th St., Philadelphia, Pa. 1920
JOHN G. MONTGOMERY, 5831 Cedarhurst St., Philadelphia, Pa. 1919
ADOLF MÜLLER, Box 66, Norristown, Pa. 1920
DR. FRANCIS W. PENNELL, Moylan, Pa. 1910
EDWARD PENNOCK, 3609 Woodland Ave., Philadelphia, Pa. 1927
HAROLD W. PRETZ, 123 S. 17th St., Allentown, Pa. 1909
J. W. PRINCE, 5439 Berks St., Philadelphia, Pa. 1924
EVAN RANDOLPH, Seminole & Chestnut Ave., Philadelphia, Pa. 1917
GEORGE REDLES, 207 E. Wister St., Philadelphia, Pa. 1917
DR. W. H. REED, Jeffersonville, Pa. 1892
CHARLES C. ROBERTS, Lansdowne, Pa. 1926
EDWIN I. SIMPSON, 532 Widener Bldg., Philadelphia, Pa. 1907
LEE SOWDEN, 3823 Oak Road, East Falls Sta., Philadelphia, Pa. 1901
DR. D. WALTER STECKBECK, University of Pennsylvania, Phila., Pa. 1925
HUGH E. STONE, Haverford, Pa. 1924*
DR. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. ..... Founder
WILLARD A. STOWELL, 41 Delawareview Ave., Trenton, N. J. 1920
J. FLETCHER STREET, 1120 Locust St., Philadelphia, Pa. 1918
ROBERT R. TATTNALL, 1100 W. 10th St., Wilmington, Del. 1928
DR. WILLIAM RANDOLPH TAYLOR, Univ. of Pennsylvania, Phila., Pa. 1921
ARTHUR H. THOMAS, Haverford, Pa. 1928
W. R. THOMAS, Custom House, Philadelphia, Pa. 1924
H. R. THOMPSON, 5016 Schuyler St., Philadelphia, Pa. 1920
HARRY W. TRUDELL, 2030 E. Madison St., Philadelphia, Pa. 1915

* Corresponding Member from 1893.

DR. RODNEY H. TRUE, Univ. of Pennsylvania, Philadelphia, Pa. 1925
WALTER VAN DER HENGEL, 63rd & Overbrook Ave., Overbrook, Pa. 1922
CLARENCE E. VARNUM, Atco, N. J. 1923
ROBERT F. WELSH, 142 S. 4th St., Philadelphia, Pa. 1909
C. S. WERTSNER, 211 N. 13th St., Philadelphia, Pa. 1920
J. GILBERT WILLIAMS, 1517 N. 58th St., Philadelphia, Pa. 1919
EDWARD W. WINSOR, College Farm, New Brunswick, N. J. 1920
HANS WILKINS, 241 S. 11th St., Reading, Pa. 1928

HONORARY MEMBERS

GEORGE W. BASSETT, 3148 W. Ironside Road, Camden, N. J. 1904*
SAMUEL NEWMAN BAXTER, Fernhill Park, Philadelphia, Pa. 1918*
DR. JOSEPH S. ILLICK, Mont Alto, Pa. 1925
DR. HENRY LEFFMAN, 145 N. 10h St., Philadelphia, Pa. 1922*
T. CHALKLEY PALMER, Media, Pa. 1927
JOHN J. TYLER, 107 E. Johnson St., Philadelphia, Pa. 1919
SAMUEL S. VAN PELT, 59 Bethlehem Pike, Philadelphia, Pa. 1902*
DR. EDGAR T. WHERRY, 3383 Stephenson Place, Washington, D. C. 1925

CORRESPONDING MEMBERS

CHARLES C. BACHMAN, Slatington, Pa. 1908
MRS. ELIZABETH G. BRITTON, N. Y. Botanical Garden, N. Y. City 1895
DR. NATHANIEL LORD BRITTON, N. Y. Botanical Garden, N. Y. City... 1892
REV. J. S. BUNTING, Macon, Ga. 1907
STEWART H. BURNHAM, Hudson Falls, N. Y. 1911
A. ARTHUR HELLER, Chico, Calif. 1893
DR. HAROLD ST. JOHN, State College of Washington, Pullman, Wash. 1927
CHARLES F. SAUNDERS, Pasadena, Calif. 1893
DR. JOHN K. SMALL, New York Botanical Garden, New York City 1893
DR. CAMPBELL E. WATERS, Washington, D. C. 1904
DR. HEBER W. YOUNGKEN, Mass. College of Pharmacy, Boston, Mass. 1918

RECENTLY DECEASED MEMBERS

	Died
GEORGE M. BERINGER, Founder	June 23, 1928
DR. C. D. FRETZ, Active	Aug. 17, 1926
DR. A. ARTHUR JONES, Active	July, 1927
CHARLES D. LIPPINCOTT, Founder	Jan. 19, 1926
JOHN T. PENNYPACKER, Active	March 5, 1926
W. A. POYSER, Corresponding	Feb. 29, 1928
A. E. URBAN, Active	Feb. 3, 1927

* Elected Active Members on these dates.

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